ORDER NO. VRD9706009C2

Service Manual

General Description
Adjustment Procedures
Block / Schematic Diagrams
Exploded Views / Parts List

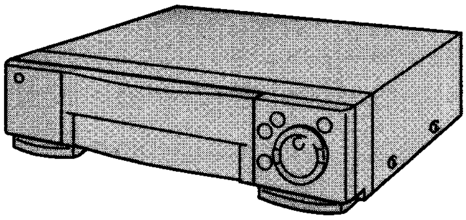
Video Cassette Recorder

Panasonic S VHS VHS PAL 625

Hi-Fi HQ

NV-HS950EG

K-MECHANISM



SPECIFICATIONS

ITEM	SPECIFICATION
POWER	SOURCE: 220−240 V AC 50/60 Hz
	CONSUMPTION: 27 watts
RECORDING SYSTEM	2 rotary heads, helical scanning system
	PAL
TV TUNER SYSTEM	VHF I: CHN1−CHS10 VHF III: CHE5−CHS41 (PAL/SECAM B) UHF: CH21−CH69 (PAL/SECAM G) 75Ω terminated
RF OUT SYSTEM	UHF: CH21-CH69 (PAL/SECAM G) 71±3dBμ, 75Ω terminated
VIDEO	HEADS: 4 rotary heads 1 pair for recording and playback (L-R heads) 1 pair for trick play (L'-R' heads) 1 flying erase head
	INPUT: EURO AV (AV1, AV2) Connectors (21 pin) 1.0 Vp-p, 75Ω unbalanced S-VIDEO IN (AV3: FRONT/REAR) Connector 1.0 Vp-p, 75Ω unbalanced VIDEO IN (AV3: FRONT/REAR) Connector (Phono type) 1.0 Vp-p, 75Ω unbalanced
	OUTPUT: EURO AV (AV1, AV2) Connectors (21 pin) 1.0 Vp-p, 75Ω unbalanced S-VIDEO OUT Connector 1.0 Vp-p, 75Ω unbalanced VIDEO OUT Connector (Phono type) 1.0 Vp-p, 75Ω unbalanced
AUDIO	HEAD: 1 Stationary head (Normal-mono only) 2 channels (Hi-Fi Sound-Stereo)
	INPUT: EURO AV (AV1, AV2) Connectors (21 pin) More than −6 dBV (500 mV), More than 10 kΩ AUDIO IN (AV3: FRONT/REAR) Connector (Phono type) More than −6 dBV (500 mV), More than 47 kΩ MICROPHONE JACK −70 dBV

ITEM	SPECIFICATION
AUDIO	OUTPUT: EURO AV (AV1, AV2) Connectors (21 pin) −6 dBV (500 mV), Less than 1 kΩ AUDIO OUT Connector (Phono type) −6 dBV (500 mV), Less than 1 kΩ HEADPHONE JACK −30 dBV, 8Ω
TAPE FORMAT	S-VHS, VHS Cassette tape (Tape width 12.7 mm)
TAPE SPEED	SP: 23.39 mm/s LP: 11.695 mm/s Record/Playback Time: SP: 4 hours with 240 min. type tape LP: 8 hours with 240 min. type tape FF/REW Time: 2.5 min. with 180 min. type tape
OPERATING TEMPERATURE	5°C−40°C
OPERATING HUMIDITY	35%−80%
DIMENSIONS	430 (W)×107 (H)×356 (D) mm
WEIGHT	5.5 kg
STANDARD ACCESSORIES	1 pc. DIN-RF Cable 1 pc. AC Mains Lead 1 pc. Infra-res Remote Controller 1 pc. Stereo Audio Cable 1 pc. S-VIDEO 4P Cable 1 pc. Edit 5P Cable 1 pc. IR Cable

Weight and dimensions shown are approximate.
Specifications are subject to change without notice.

Panasonic

© 1997 Matsushita Electric Industrial Co., Ltd.
All rights reserved. Unauthorized copying and distribution is a violation of law.

⚠ **WARNING**

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

INTRODUCTION

This service manual contains technical information which will allow service personnels to understand and service this model.

Section 1 presents you with technical know how for actual servicing and general information of features and controls, enabling you to become familiar with each function.

Section 2 presents to your mechanical and electrical adjustment information as well disassembly and replacement procedures.

In the case of very common information relating to other models like mechanical adjustments, please refer to the appropriate service manual.

Section 3 contains block diagrams which provides you with information for checking and understanding each circuit. Schematic diagrams which give you detailed information such as waveforms, voltage data, function e.t.c. ...

Section 4 contains exploded views and parts list.

Please place orders using the parts list and not the drawing reference numbers.

If the circuit is changed or modified, this information will be followed by supplementary service manual to be filed with original service manual.

Note 1: Adjustment procedures, Disassembly Procedures and Assembly Procedures for Mechanism Chassis are separate volume from this service manual.
Please refer to the service manual for K-Mechanism Chassis. (Order No. VRD9307M131)

CONTENTS

SECTION 1
GENERAL DESCRIPTIONS

1-1. SERVICE INFORMATION 1-1
1-2. SELF-TEST INDICATION DISPLAY 1-6
1-3. SERVICE INFORMATION DISPLAY 1-7
1-4. OPERATING INSTRUCTIONS 1-12

SECTION 2
ADJUSTMENT PROCEDURES

2-1. DISASSEMBLY METHOD 2-1
2-2. MECHANICAL ADJUSTMENT PROCEDURES 2-3
2-3. DISASSEMBLY PROCEDURES OF MECHANISM 2-3
2-4. ASSEMBLY PROCEDURES OF MECHANISM 2-3
2-5. ELECTRICAL ADJUSTMENT PROCEDURES 2-6

SECTION 1
GENERAL DESCRIPTIONS

1-1. SERVICE INFORMATION

1-1-1. CHANNEL MEMORY IC INITIALIZATION

When replacing the memory IC6702, its IC should be initialized.

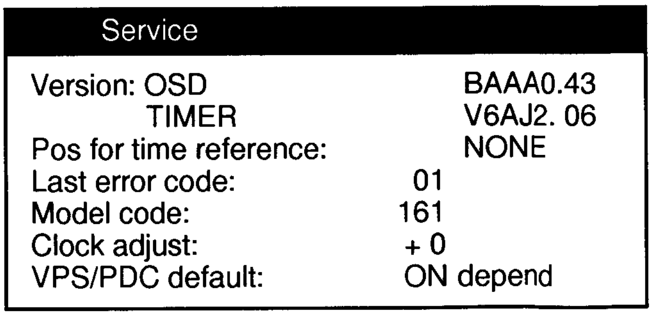
Note:1) It should be performed before tuning.
2) Meaning of "INITIALIZATION" is to make dependency in different models and to distinguish between different features.

How to set the Model Code.

Key operation	FIP Display	TV Monitor
Press the FF and EJECT keys.	0 00 0	None
Press the FF and EJECT keys in twice.	2 00 00	None
Press the EJECT keys for 3 seconds.	2 00	None
Press the CH UP key in twice.	2 2 00	None
Press the Power key.	2 2:00 ↑flashing	Service Mode (See Fig. S2)
Set the Model Code by using 10-key on the Remote Controller Unit. (See Fig. S1)	2 2:00 ↑flashing	Service Mode (See Fig. S2)
(For cancell) Press the Power key.	2 2 00	None
Press the FF and EJECT key several times until normal display.	10:00	None

Model	Code No.
NV-HS950EG	161

Fig. S1 Model Code



Service

Version: OSD BAAA0.43
TIMER V6AJ2. 06
Pos for time reference: NONE
Last error code: 01
Model code: 161
Clock adjust: + 0
VPS/PDC default: ON depend

Fig. S2 Sample of Service Mode OSD

Caution:
Since the "Clock adjust" and "VPS/PDC default" are future expansion, do not change the initial setting.

SECTION 3
BLOCK DIAGRAMS & SCHEMATIC DIAGRAMS

3-1. ABBREVIATIONS 3-1
3-2. SYSTEM CONTROL & SERVO BLOCK DIAGRAM 3-13
3-3. LUMINANCE & CHROMINANCE BLOCK DIAGRAM 3-15
3-4. TIMER BLOCK DIAGRAM 3-21
3-5. Hi-Fi AUDIO BLOCK DIAGRAM 3-22
3-6. POWER SCHEMATIC DIAGRAM 3-25
3-7. POWER SUPPLY/RF SECTION IN MAIN SCHEMATIC DIAGRAM 3-27
3-8. SYSTEM CONTROL & SERVO SECTION IN MAIN SCHEMATIC DIAGRAM 3-29
3-9. MOTOR DRIVE SECTION IN MAIN SCHEMATIC DIAGRAM 3-33
3-10. LUMINANCE & CHROMINANCE/AUDIO SECTION IN MAIN SCHEMATIC DIAGRAM 3-35
3-11. OSD SECTION IN MAIN SCHEMATIC DIAGRAM 3-39
3-12. Hi-Fi AUDIO PACK SCHEMATIC DIAGRAM 3-41
3-13. ANALOGUE LUMINANCE & CHROMINANCE PACK SCHEMATIC DIAGRAM 3-43
3-14. INPUT/OUTPUT PACK SCHEMATIC DIAGRAM 3-47
3-15. DIGITAL LUMINANCE & CHROMINANCE SCHEMATIC DIAGRAM 3-50
3-16. HEAD AMP SCHEMATIC DIAGRAM 3-55
3-17. AFC PACK SCHEMATIC DIAGRAM 3-57
3-18. SUB POWER SCHEMATIC DIAGRAM 3-58
3-19. FRONT JACK SCHEMATIC DIAGRAM 3-58
3-20. VR SCHEMATIC DIAGRAM 3-59
3-21. TIMER SCHEMATIC DIAGRAM 3-61
3-22. TV DEMODULATOR PACK SCHEMATIC DIAGRAM 3-64
3-23. DECODER PACK SCHEMATIC DIAGRAM 3-65
3-24. SUB POWER C.B.A. 3-66
3-25. MAIN C.B.A. 3-67
3-26. ANALOGUE LUMINANCE & CHROMINANCE PACK C.B.A. 3-69
3-27. DIGITAL LUMINANCE & CHROMINANCE C.B.A. 3-71
3-28. POWER C.B.A. 3-73
3-29. TIMER C.B.A. 3-73
3-30. AFC PACK C.B.A. 3-75
3-31. FRONT JACK C.B.A. 3-75
3-32. VR C.B.A. 3-76
3-33. Hi-Fi AUDIO PACK C.B.A. 3-77
3-34. INPUT/OUTPUT PACK C.B.A. 3-78
3-35. HEAD AMP C.B.A. 3-79
3-36. TV DEMODULATOR PACK C.B.A. 3-80
3-37. DECODER PACK C.B.A. 3-80

SECTION 4
EXPLODED VIEWS & PARTS LIST

4-1. EXPLODED VIEW & MECHANICAL REPLACEMENT PARTS LIST 4-1
4-2. ELECTRICAL REPLACEMENT PARTS LIST 4-8

1-1-2. SERVICE POSITION

A. CHECKING OF MAIN C.B.A.

When servicing the MAIN C.B.A., take out the MAIN C.B.A. and mechanism from the frame and turn over.

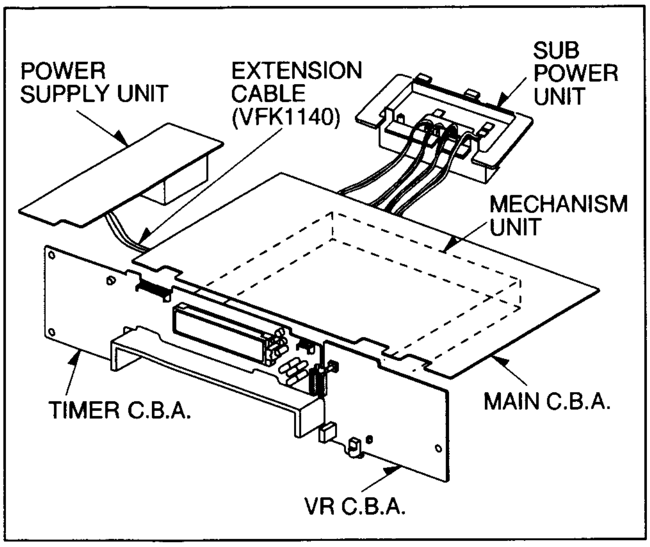


Fig. S3

B. MECHANISM SERVICE POSITION

When servicing the K-Mechanism, take out the mechanism from the MAIN C.B.A. and connect Extention Cable (VFK0889) between the loading-motor connector and P2001 as shown below.
In this position, the following services are possible.

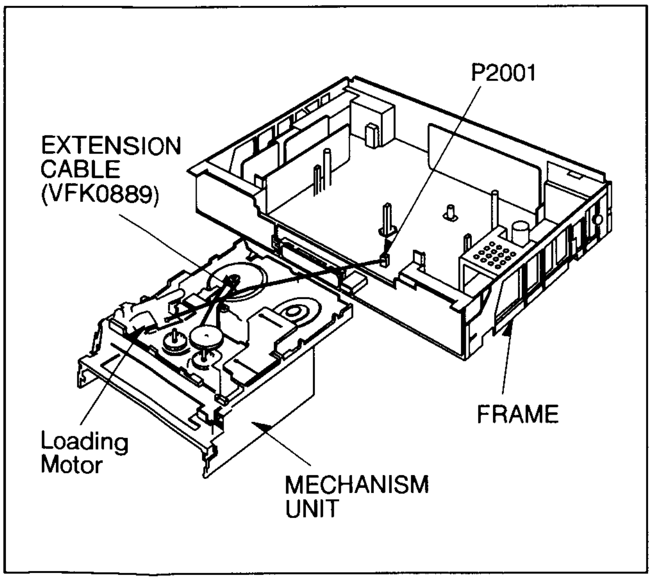


Fig. S4

B-1. CHECKING OF LOADING/UNLOADING OPERATION

There are 3 methods for manual operation of loading/unloading operation as follows.

1. HAND OPERATION
   1) Turn the Worm Gear or the Worm Wheel Gear (Remove the Loading Motor Unit) manually.

2. BATTERY OPERATION
   1) Remove the Extention Cable (VFK0889).
   2) Connect the Battery (Manganes-Type R6 (AA) 3pcs./+4.5V) to the Loading Motor terminals.

3. SERVICE INFORMATION DISPLAY OPERATION
   1) Set the Service Information Display mode.
      Turn the Shuttle Ring to FF then push the EJECT button.
   2) Turn the Shuttle Ring to FF then push the EJECT button 7 times to set the Service Mode 7. (The end of display on the Display becomes "–").
   3) In the above Service Information Display mode, the Loading Motor rotates for Loading operation when the "PLAY" button is pressed.
      The Loading Motor rotates for unloading operation when the "STOP" button is pressed.

Remark:
Use the "SERVICE INFORMATION DISPLAY" mode for a final check of mechanism movement.

B-2. CHECKING OF REEL GEARS OPERATION

1) Move the mechanism to "PLAY" position by loading operation. (Refer to B-1)
2) Turn the Capstan Rotor Unit to check movement of reel gears.

1-1-3. UPPER CYLINDER DISASSEMBLY

1) Remove the Top Panel.
2) Remove the screw (A) and Earth Plate.
3) Move the lock pinch to the left side in order to release the cylinder lock.
4) Keep turning the Upper cylinder clockwise and counterclockwise alternately and remove the Upper cylinder.

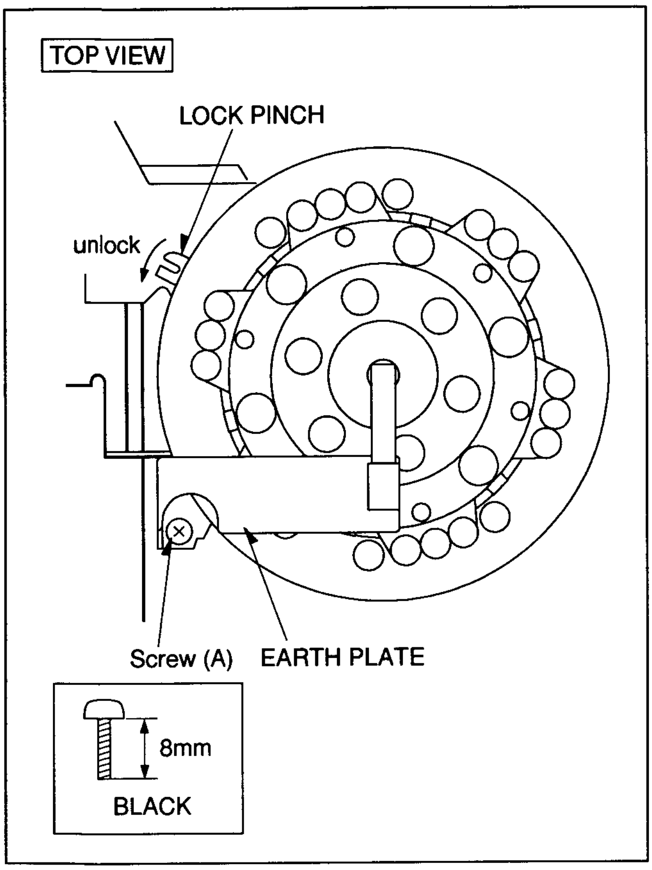

TOP VIEW
LOCK PINCH
unlock
Screw (A)
EARTH PLATE
8mm
BLACK

Fig. S5

1-1-4. UPPER CYLINDER ASSEMBLY

1) When mount the Upper cylinder, the lock of it has to be released.
   Keep turning Upper cylinder clockwise and counterclockwise alternately and keep pressing it until it is mounted completely.
2) Move the lock pinch to right side in order to fix the Upper cylinder after the Upper cylinder has been mounted.

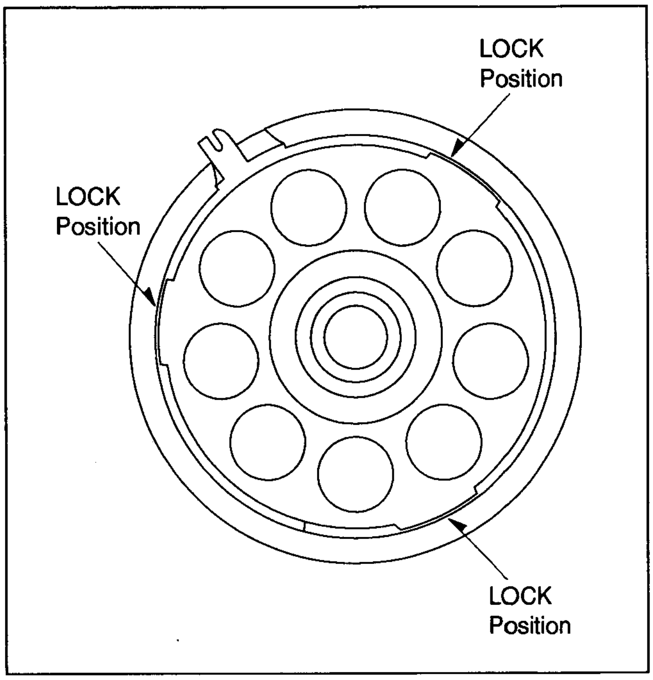

LOCK
Position
LOCK
Position
LOCK
Position

Fig. S6

1-1-5. CYLINDER UNIT REPLACEMENT

A. CYLINDER UNIT REPLACEMENT

1) Remove the 3 Screws (B) of the CYLINDER UNIT with a magnetized screw driver in the MECHANISM SERVICE POSITION.

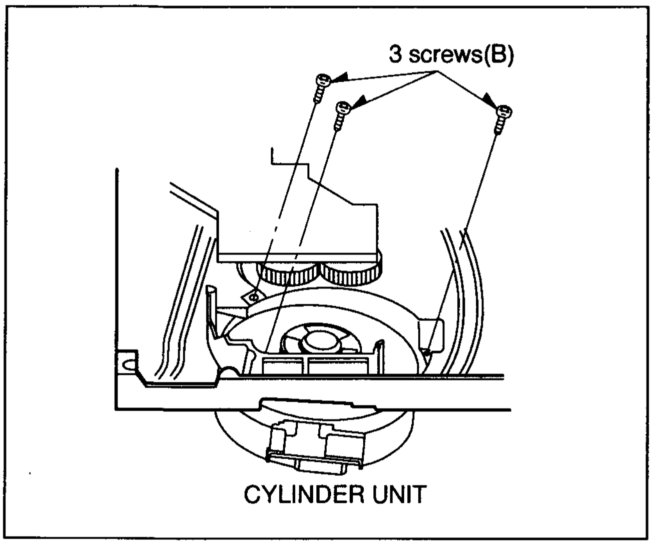

3 screws(B)
CYLINDER UNIT

Fig. S7

1-1-6. FLAT CARD CABLE INSTLLATION

When installing the Flat Card Cable on the connector, install the Flat Card Cable with the cable contacts facing the connector contacts.

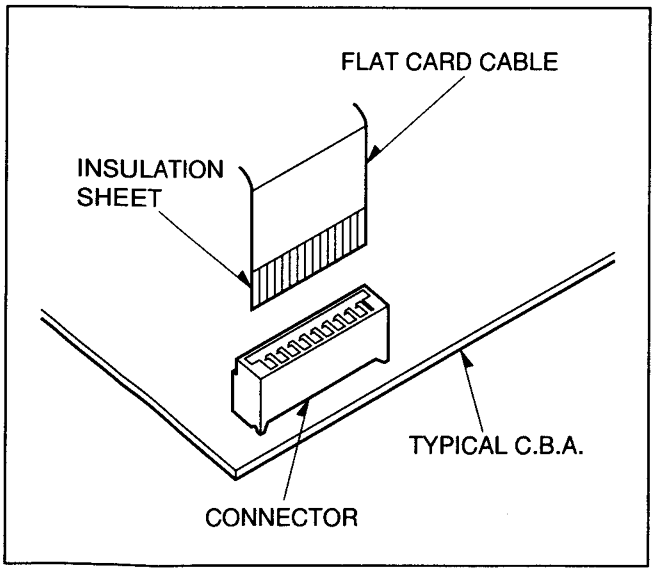

FLAT CARD CABLE
INSULATION SHEET
TYPICAL C.B.A.
CONNECTOR

Fig. S8

1-1-7. CAPSTAN STATOR UNIT ASSEMBLY

When replacing the Capstan Stator Unit, the Centre Fixing Tool (VFK0851) must be used to fix the centre of Capstan Stator Unit.

Method:

1) Place the Capstan Stator Unit into position.
2) Loosely tighten the 3 screws.
3) Insert the Centre Fixing Tool (VFK0851) as shown below.
4) Tighten the 3 screws.
5) Remove the Centre Fixing Tool.

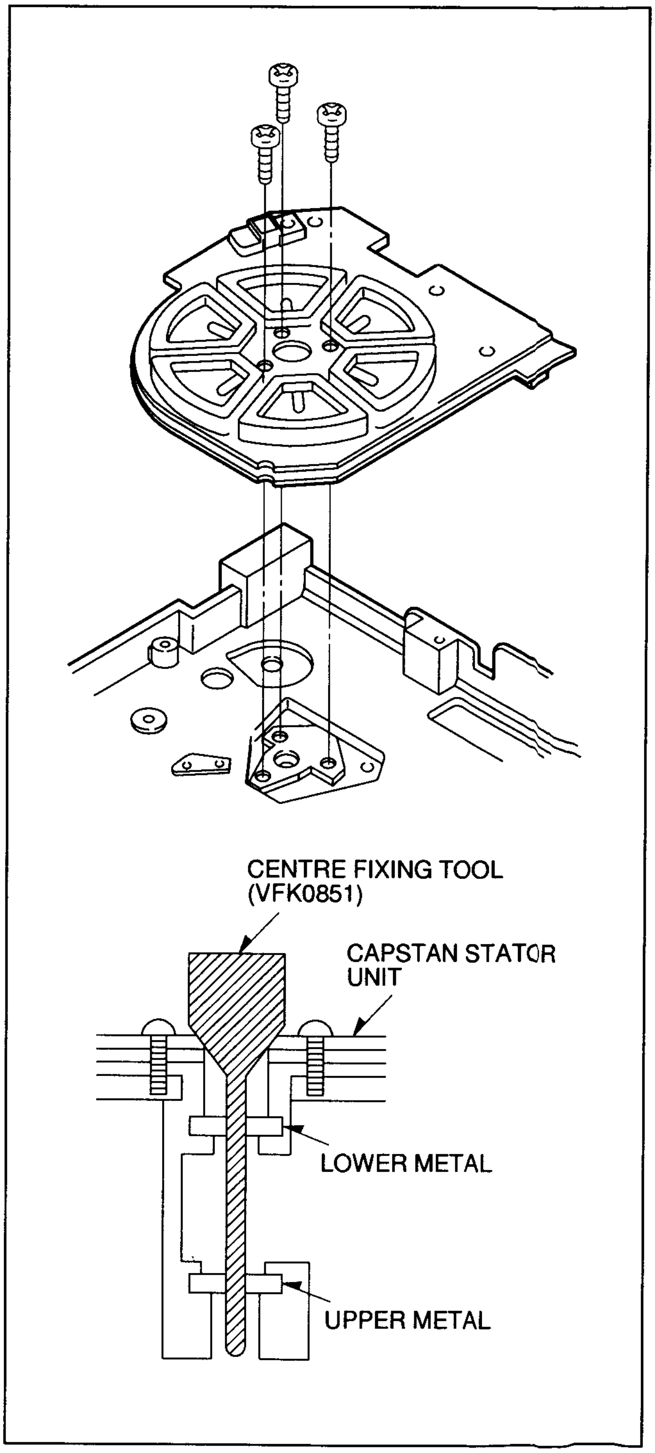

CENTRE FIXING TOOL (VFK0851)
CAPSTAN STATOR UNIT
LOWER METAL
UPPER METAL

Fig. S9

1-1-8. EJECT OPERATION

The main cam gear rotates in the direction of the arrow. The projection (B) of the carriage connection gear engages with the recession (A) of the main cam gear. The carriage connection gear rotates in the direction of the arrow to perform the Eject operation.

<NOTE>
If the Eject operation is performed without the cassette carriage installed while repairing or making the mechanical phase alignment, the main cam gear will not engage with the carriage connection gear and will not rotate.
To perform the Eject operation with the cassette carriage not installed, it is necessary to rotate the carriage connection gear by hand in the direction of the arrow.

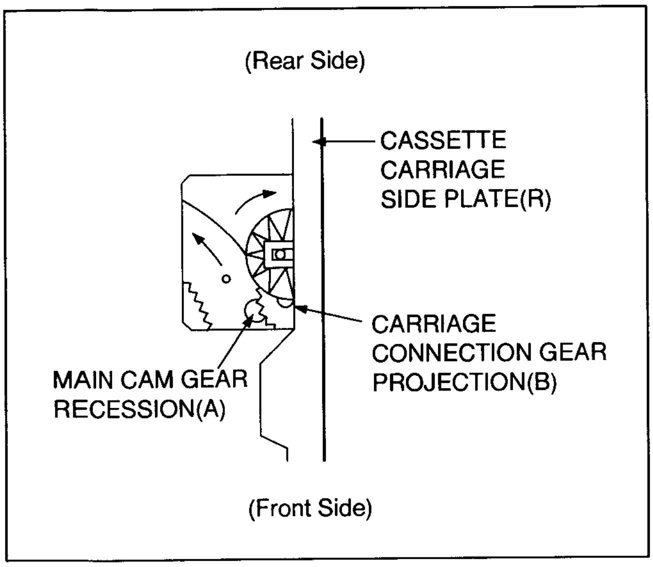

(Rear Side)
CASSETTE CARRIAGE SIDE PLATE(R)
CARRIAGE CONNECTION GEAR PROJECTION(B)
MAIN CAM GEAR RECESSION(A)
(Front Side)

Fig. S10 Top View of Eject Operation

1-1-9. TAKE-UP PHOTO SENSOR OPERATION

Note the following matters for Take-up Photo Sensor Operation.

1) While servicing of the K-Mechanism, the unit will not operate properly if a strong light (ex, Fluorescent light, Spot light) falls on the Take-up Photo Sensor. In this case, cover the Take-up Photo Sensor to prevent the light from falling on it.
2) While servicing of the K-Mechanism with "Power On" and without cassette tape inserted, the Unit does not operate properly.

1-1-10. REMOVAL OF THE CASSETTE TAPE

If the electrical circuit is defective and the action of unloading and front unloading do not work properly, it is possible to remove the cassette manually. There are 2 methods of removing the cassette.

1. HAND OPERATION

1) Take out the mechanism from MAIN C.B.A.
2) Turn the Worm Gear manually, moving the Loading Post to the unloaded position.
3) Turn the Capstan Rotor Unit clockwise to take up the tape.
4) Turn the Worm Gear again to eject the cassette.

2. BATTERY OPERATION

1) Take out the mechanism from Main C.B.A.
2) Connect the Battery (Manganes-Type R6 (AA) 3pcs./ +4.5V) to the Loading Motor terminals as shown below.
3) After moving the Loading Post to the unloaded position, disconnect the battery to stop the motor.
4) Turn the Capstan Rotor Unit to clockwise to take up the tape.
5) Reconnect the battery to eject the cassette.

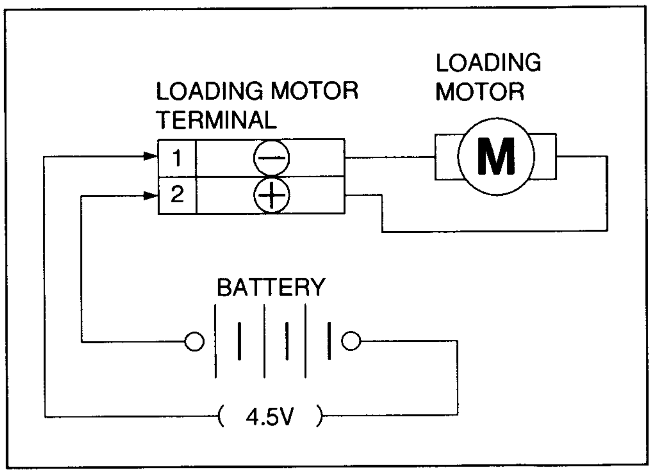


Fig. S11

If the cassette tape can not be removed by the above 2 methods, remove it by the following method.

1) Remove the Top Panel.
2) Remove the Front Panel Unit.
3) Lift up the Pinch Arm after removing spring.
4) Push the P5 Arm and remove the cassette tape from tape transportation (P1, P2, P3 and P5 Posts).
5) Turn the Capstan Rotor Unit to take up the tape.
6) Remove 1 screw from the Side Plate (R) Unit to disconnect the Rack Gear from the Carriage Connection Gear.
7) Take out the cassette tape from the Cassette Compartment.

1-2. SELF-TEST INDICATION DISPLAY

This VTR has a self-diagnosis and display function. If the VTR detects trouble during installation or during use, one of the following Fault Indication Codes will automatically appear in the VTR display. Fault Indication codes are displayed in the form of a single English letter followed by two numbers, as for example "H01".

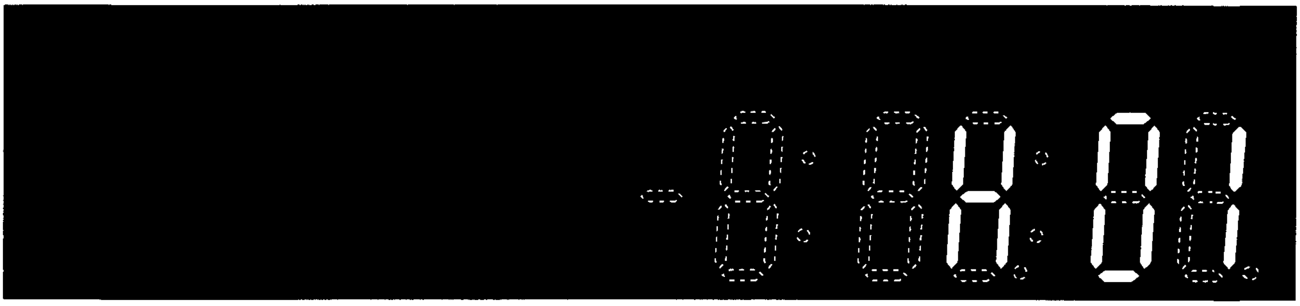
Note:1. The indication "U" is displayed on the FIP while power remains on.

2. Otherwise, the indication "H" or "F" is displayed on the FIP, and the power is automatically turned off. When the power is turned on again, the Fault Indication Code will disappear and the unit will return to normal display mode (either clock or counter).

3. This Fault Indication Code will be stored in the Timer microprocessor even with the AC plug disconnected.
The two-digit number portion of the stored Fault Indication Code can be redisplayed in the FIP's "second" display position (the last 2 digits on the light) by placing the unit is Service Mode Number 2 when turning on Service Information Display as for example "01" or "02" etc.
If a second error occurs, only the most recent error will be displayed and stored.

4. To erase the stored Fault Indication Code data.
Turn the Shuttle Ring to FF then push the EJECT button for 5 seconds.

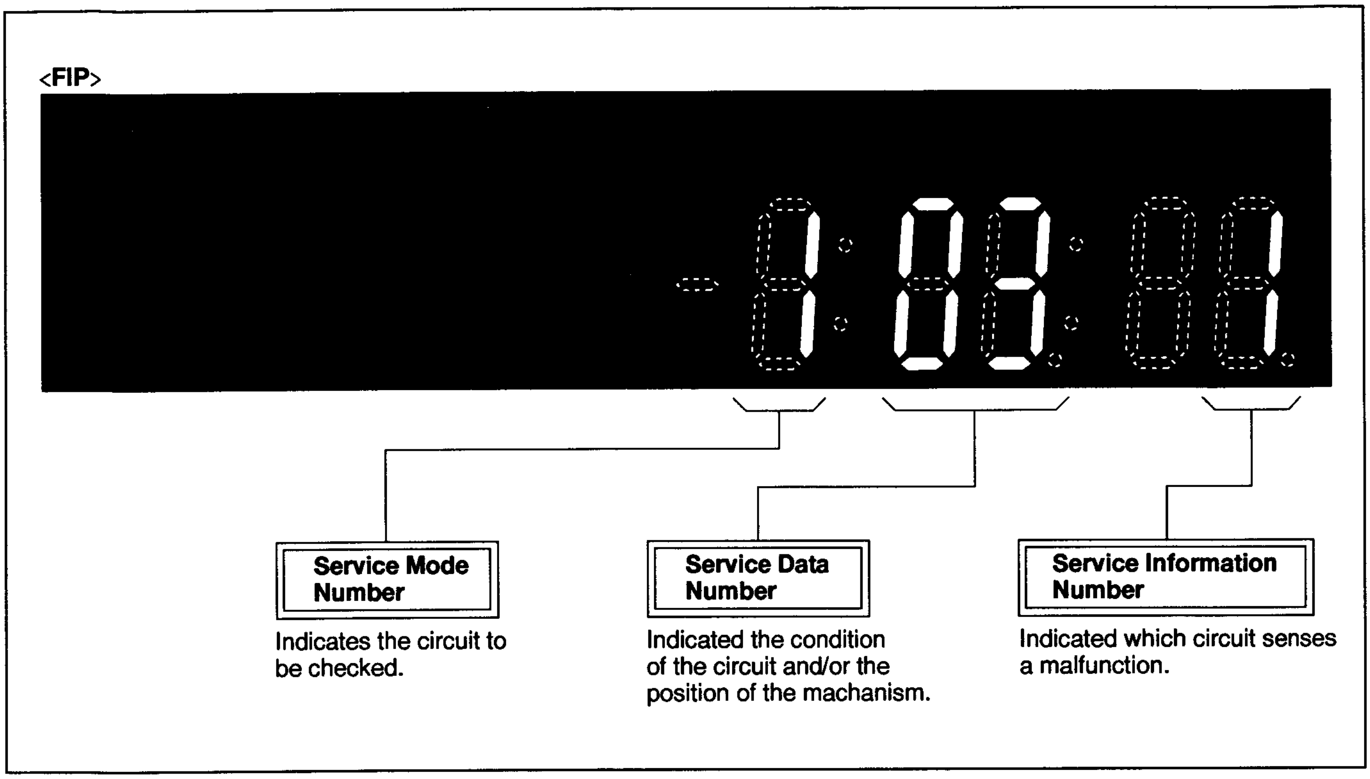
<FIP>



INDICATION	CAUSE	REMEDY/CHECK
U10	Dew formation.	Wait until the indication disappears.
H01	After cylinder lock is detected, the cylinder does not start rotating again even after tape unloading.	Check the cylinder-motor drive circuit.
H02	Cassette tape is not wound up during tape unloading except Eject mode.	Check the capstan-motor drive circuit.
F03	Mechanism locks during mode transition except Eject mode.	1.Check the loading-motor drive circuit. 2.Check the mechanism phase alignment 3.Check the Mode Switch.
F04	Mechanism locks during tape unloading.	1.Check the loading-motor drive circuit. 2.Check the mechanism phase alignment
F05	Cassette tape is not wound up during tape unloading in Eject mode.	1.Check the capstan-motor drive circuit. 2.Check the Supply/Take-up reel pulse.
F06	Mechanism locks after tape unloading in Eject mode.	1.Check the loading-motor drive circuit. 2.Check the mechanism phase alignment for Cassette Holder Unit.
F07	Rec power voltage does not appear in Rec mode.	Check the Rec power supply circuit.
F08	Rec power voltage appears except Rec mode.	Check the Rec power supply circuit.
F09	No serial clock transmission between IC6001 and IC7501.	Check the serial clock circuit.

Fig. T1 Self-Test Indication Display

1-3. SERVICE INFORMATION DISPLAY



Indicates the circuit to be checked.

Indicated the condition of the circuit and/or the position of the machanism.

Indicated which circuit senses a malfunction.

Fig. D1 Service Information Display

1-3-1. Purpose of Service Information Display

This information aids trouble shooting by indicating the source of the malfunction. The service mode number & service data number are used by the technician during repair while the service information can be used by the consumer to diagnose malfunctions allowing the technician to provide a more accurate repair cost estimate and reduce repair time.

1-3-2. Turning on Service Information Display

(1) Turn the Shuttle Ring to FF then push the EJECT button to set the Service Mode.

In the Service Information Display, there are four digits divided into 3 functions.
The first digit indicates which of the 7 service modes that the unit is currently in.

MODE 1 : Checks tape protection circuit
MODE 2 : Checks tape transport mechanism
MODE 3 : Checks mode switching operation
MODE 4 : Checks control buttons
MODE 5 : Checks capstan motor
MODE 6 : Checks cylinder motor
MODE 7 : Checks loading/unloading operation

The second and third digits are service data which indicate the condition of the circuit or mechanism being checked.

The forth digit is the service Information display. It is to be used by the consumer to help determine the source of a malfunction. The service information display operates independently of the service modes and stores the fault indication in memory for as long as AC power is not supplied.

1-3-3. Use of Service Modes

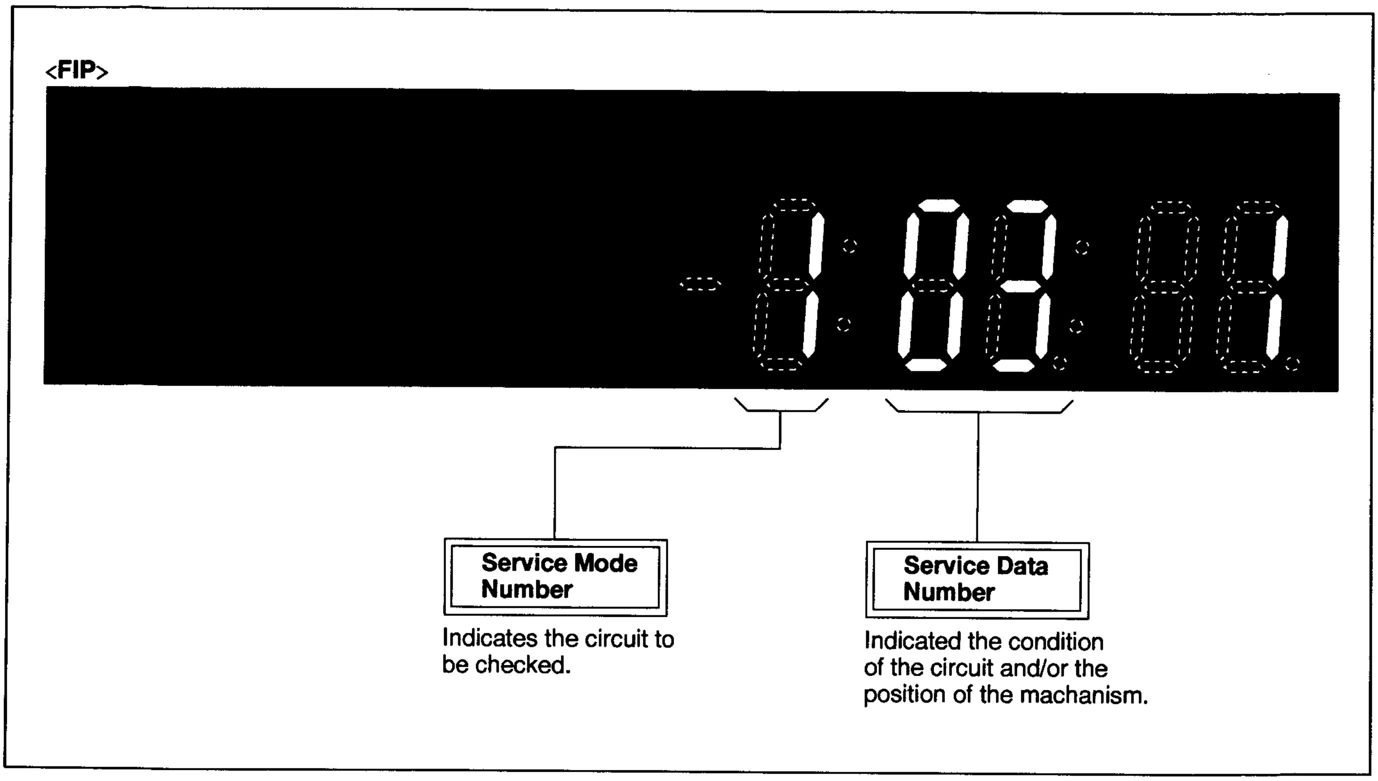

<FIP>
Service Mode Number
Indicates the circuit to be checked.
Service Data Number
Indicated the condition of the circuit and/or the position of the machanism.

Fig. D2 Service Mode Number and Service Data Number on S.I.D.

(1) Turn on Service Information Display.

(2) To change Service Modes turn the Shuttle Ring to FF then push the EJECT button.

(3) Mode 1 : Checks that the Sensor LED, Supply & Take-up Sensor circuits check the circuits by blocking the light from the Sensor LED to either or both Supply & Take-up Sensors.
1
When the light is blocked to both sensors, "00" should be indicated on the service data number.
When the light is blocked to the supply sensor, "01" should be indicated.

(4) Mode 2 : Checks the mode switch circuit while indicating mechanism position.
2
Service Data Numbers indicate the position of the mode switch and there by the mechanism position.

(5) Mode 3 : Checks that mode switch circuit operations have been completed.
3
Service Data Number should indicate "00" after each mechanism operation is completed.

(6) Mode 4 : Checks the operation circuit.
4
Indicates if IC6001 receives the operating commands from the mode buttons and/or remote controller.

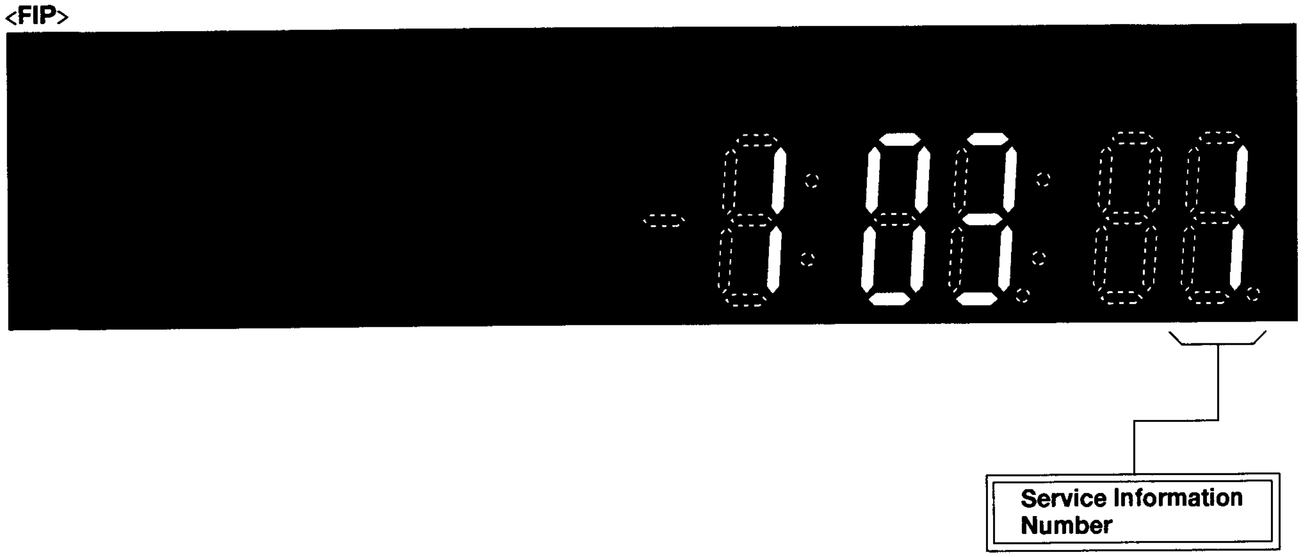
(7) Mode 5 : Checks the capstan motor circuit.
5
Indicates if the IC6001 has received the command to rotate the capstan motor.

(8) Mode 6 : Checks the cylinder motor circuit.
6
IC6001 has received the command to rotate the cylinder motor.

(9) Mode 7 : Checks the Loading/Unloading Operation.
7
The Loading Motor rotates for loading operation when the "PLAY" button is pressed.
The Loading Motor rotates for unloading operation when the "STOP" button is pressed. This mode can be displayed indefinitely until the OPERATE button is pressed.

<NOTE>
Refer to Fig. D5 for details of Service Data Numbers.

1-3-4. Service Information Number



Indicated which circuit senses a malfunction.

Fig. D3 Service Information Number on S.I.D.

Refer to Fig. D4 for details of Service Information Number.

Note:
The Service Information Number display is independent of the service mode display.
The Service Information Number will be stored as long as AC power is not supplied. (It can be displayed in the Service Mode 2.)
If a second error occurs, only the most recent error will be displayed.

Service Information Number	Malfunction
0	Normal (No problem)
1	Cylinder stop
2	Tape reel stop
3	Stop at position other than 4 or 6
4	Stop during unloading
5	Faulty capstan rotation
6	Stop during Cassette-In/Eject operation

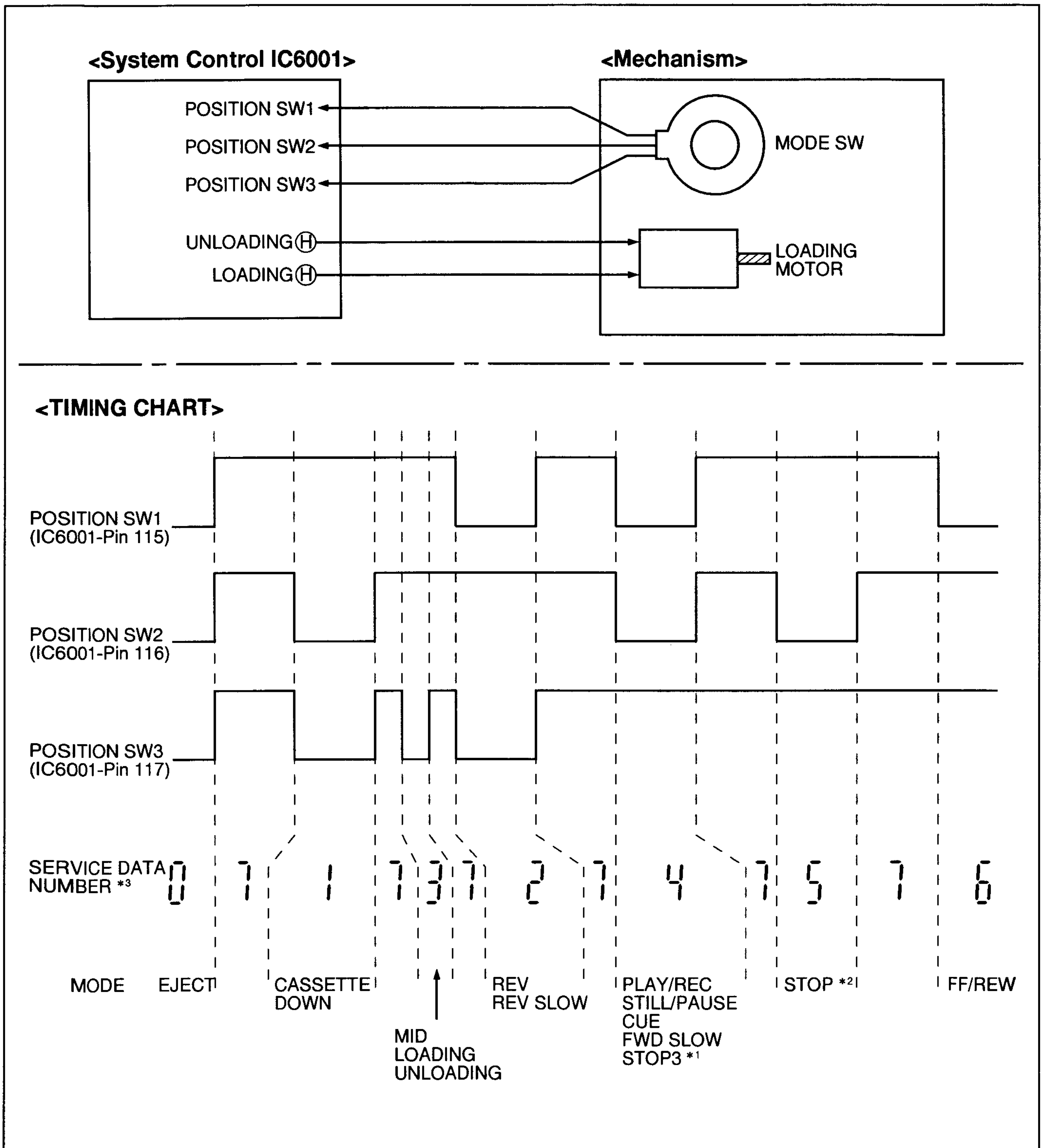
Fig. D4 Detail Service Information Numbers

Service mode Number	Note for checking Service Data Numbers	Service Data Numbers	Indication	Remarks
1	—	00	No light detected at either sensor.	Tape not required.
		01	Tape Beginning. Light to Supply Photo Sensor is blocked.	
		02	Tape End. Light to Take-up Photo Sensor is blocked.	
		03	Light detected at both sensors.	
2	—	00	EJECT	Tape Required. ∗1 : STOP3; The Pinch Roller is on the capstan motor shaft. ∗2 : STOP; The Pinch Roller is off the capstan motor shaft. Refer to Fig. D7 to Check mechanism Position and timing.
		01	Cassette-down	
		02	REV, REV SLOW	
		03	Loading/Unloading	
		04	PLAY/REC, STILL/PAUSE, CUE, FWD SLOW, STOP3 *1	
		05	STOP *2	
		06	FF/REW	
		07	Intermediate position	
3	Disregard service data displayed until mechanism operation is completed. Then the display should indicate “00”.	00	Any display other than “00” indicates a fault in the mode switch circuit or system.	Tape Required.
4	Display only when the operating button is pressed.	Refer to Fig. D6		Tape not required.
5	Left digit only, disregard Right digit display.	8 1 Left Right Digit Digit	8, 9, u, A, −, n, L, and no display indicate that the Capstan motor “PLAY” command received by IC6001.	Tape required. If a symbol other than those listed is displayed, a malfunction in that circuit is indicated.
	Right digit only, disregard left digit display.	8 7 Left Right Digit Digit	1, 2, 3, 4, 5, 6, 7, indicate that the Capstan motor “CUE, FF, Forward Slow” commands received by IC6001.	
	Right digit only, disregard left digit display.	8 Left Right Digit Digit	8, 9, u, A, −, n, L, and no display indicate that the Capstan motor “Reverse, Rew, Reverse Slow” commands received by IC6001.	
6	Left digit only, disregard Right digit display.	1 0 Left Right Digit Digit	1, 3, 5, 7, 9, A, n and no display indicate that the cylinder motor “ON” command received by IC6001.	Tape required. If a symbol other than those listed is displayed, a malfunction in that circuit is indicated.

Fig. D5 Service Data Display and Indication

1-3-5. Timing Chart from Mode SW to System control IC6001

System control IC6001 senses the mechanism position through the Mode SW.
Fig. D6 shows the timing for Service Mode Number 2.

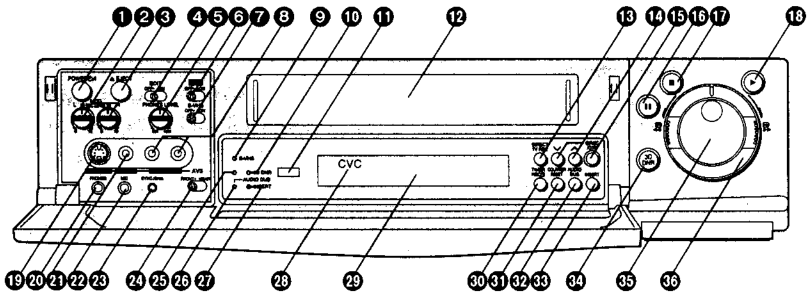

<System Control IC6001>
POSITION SW1
POSITION SW2
POSITION SW3
UNLOADING Ⓗ
LOADING Ⓗ
<Mechanism>
MODE SW
LOADING MOTOR
<TIMING CHART>
POSITION SW1 (IC6001-Pin 115)
POSITION SW2 (IC6001-Pin 116)
POSITION SW3 (IC6001-Pin 117)
SERVICE DATA NUMBER *3
0 7 1 7 3 7 2 7 4 7 5 7 6
MODE
EJECT
CASSETTE DOWN
MID LOADING UNLOADING
REV REV SLOW
PLAY/REC STILL/PAUSE CUE FWD SLOW STOP3 *1
STOP *2
FF/REW

∗1 : Stop 3 ; The pinch Roller is on the capstan motor shaft.
∗2 : Stop ; The pinch Roller is off the capstan motor shaft.
∗3 : Service Data Number ; This is for Service Mode Number 2.

Fig. D6 Timing Chart of Mode SW

Controls and Connection Sockets

This gives a detailed explanation of the function of each button, switch and connection socket.



① **POWER ⏻/I (VCR ⏻)**
Press to switch the VCR from on to standby mode or vice versa. In standby mode, the VCR is still connected to the mains.

② **AUDIO REC LEVEL**
To adjust the recording level to peak at +4 dB on the recording level indicator.

③ **EJECT**
To eject a video cassette.

④ **EDIT**
OFF: For normal use of the VCR.
ON: Select this position when editing.
The picture quality is set to a status which is suited to editing.
- The 3D DNR function ceases to work.
- The TBC does not function during slow playback or still-picture playback.
- This must be set to ON when performing editing operations using the VITC code.

⑤ **PHONES LEVEL**
For adjusting the volume level of connected stereo headphones.

⑥ **TBC**
When the tape in the cassette is loose or damaged, or when the tape movement is unstable during recording or playback, the playback picture may shake from side to side and the picture may become distorted. In this case, activate the Time Base Corrector by setting the TBC Switch to ON, and the picture will become stable and the shaking will be minimized.
- For normal use, set the TBC Switch to OFF.
- During playback, the picture may shake vertically or horizontally. In such a case, set the TBC Switch to OFF.
- This function will not work during NTSC playback.

⑦ **S-VHS**
When recording on an S-VHS cassette tape, select the desired recording format with this switch.
ON: The recording will be made in the S-VHS format.
- The S-VHS indicator lights up.

OFF: The recording will be made in the VHS format.
- The S-VHS indicator does not light up.

(It is possible to make a recording on an S-VHS cassette tape in the VHS format, for example, in order to play back the tape on another VHS VCR.)
- When using VHS cassettes, the recording is made in the VHS format irrespective of the position to which this switch is set.
- When a tape which was recorded in the S-VHS format is played back on a conventional VHS VCR, it is not possible to obtain playback picture.

⑧ **AUDIO IN (AV3)**
To connect the audio cable to a movie camera or to another VCR.

⑨ **S-VHS Indicator**
Lights up when the S-VHS format.

⑩ **3D DNR Indicator**
When the 3D DNR function is on, this indicator is lit.

⑪ **Infra-red Remote Control Receiver Window**

⑫ **Cassette Compartment**
Insert a video cassette here.

⑬ **DIRECT TV REC**
For the Direct TV REC function.

⑭ **∨ ∧**
To select the required programme position (TV station).

These buttons can also be used for tracking adjustment and vertical locking adjustment.
See page 9.

⑮ **REC/OTR**
To start a recording.
For One-Touch Recording (OTR).

⑯ **▮▮ (PAUSE/STILL)**
In the stop mode: Still picture (Jog/Shuttle mode).
During playback:
- By pressing: Still picture. "▯▯" is lit. (Jog/Shuttle mode).

During recording: Interrupts recording.

⑰ **■ (STOP)**
To stop any playback or recording.

⑱ **▶ (PLAY)**
To start playback. "▷" is lit.
For the repeat playback function.

⑲ **S-VIDEO IN (AV3)**
To connect the S-Video cable to a movie camera or to another VCR that has a S-Video output socket.
- If an S-Video cable is connected, other video input (AV3) is automatically switched off.

⑳ **PHONES**
To connect stereo headphones.

㉑ **VIDEO IN (AV3)**
To connect the video cable to a movie camera or to another VCR.

㉒ **MIC**
To connect a microphone for recording. Once connected, this socket has priority.

㉓ **SYNC/8 mm**
To connect the synchro connection cord (VW-K10E/VW-K1E) to a movie camera or another VCR equipped with synchronized editing capability.
To connect a movie camera or another VCR equipped with LANC socket for One-Touch-Editing.

㉔ **AV3 Selector**
When Recording via the AV3 sockets on the front panel or rear panel, set this switch to FRONT or REAR.

㉕ **Standby Indicator**
This indicator is lit when the VCR is turned off or the VCR is timer recording standby mode.

㉖ **AUDIO DUB Indicator**
This indicator is lit when the audio dubbing is performed.

㉗ **INSERT Indicator**
This indicator is lit when the insert editing is performed.

㉘ **CVC Indicator**
This indicator is lit when the power is ON.

㉙ **Display**

㉚ **TIMER REC**
To turn the timer recording function on and off.
⏲ is lit or not lit.
Once operating timer recording function, the normal VCR operation is not possible unless this button is set to off.

㉛ **COUNTER RESET**
To reset the tape counter (elapsed time) to "0:00.00".
- The tape counter is automatically reset to "0:00.00" when a video cassette is inserted.

㉜ **AUDIO DUB**
To set up the VCR for audio dubbing.

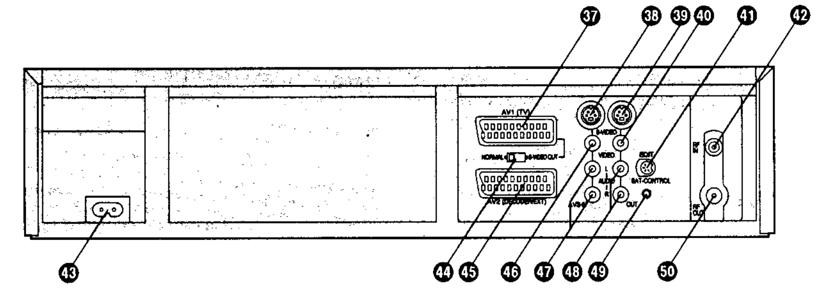
㉝ **INSERT**
To set up the VCR for insert editing.

㉞ **3D DNR**
ON: Using the 3D DNR function, playback is performed in the state which achieves optimum picture quality in light of characteristics of a tape.
- The 3D DNR indicator is lit.
- This control should normally be left in the ON position.
- The 3D DNR function does not work during NTSC playback.

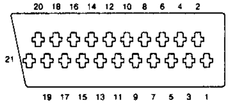
OFF: Turn off the 3D DNR function.
- The 3D DNR indicator is not lit.

㉟ **Jog Dial**
To locate any desired frame with utmost precision.

㊱ **Shuttle Ring**
In the stop mode: To rewind or fast forward the tape.
In the playback mode:
To search picture backward or forward.
In the still playback mode:
To adjust playback speed backward or forward.
In the rewind or fast forward mode:
To obtain high speed picture.



㊲ **AV1 (TV)**
This 21-pin scart terminal carries input and output signals for both picture and sound. TV sets equipped with a similar socket can be connected here.
This is also called Scart
Peritel
Euro Connector
Euro AV



NORMAL (AV1/AV2)	S-VIDEO (AV1)
1 AUDIO OUTPUT CH2 (R)	1 AUDIO OUTPUT CH2 (R)
2 AUDIO INPUT CH2 (R)	2 AUDIO INPUT CH2 (R)
3 AUDIO OUTPUT CH1 (L)	3 AUDIO OUTPUT CH1 (L)
4 AUDIO GND	4 AUDIO GND
5 BLUE GND	5 No connection
6 AUDIO INPUT CH1 (L)	6 AUDIO INPUT CH1 (L)
7 BLUE	7 No connection
8 SWITCHING VOLTAGE	8 SWITCHING VOLTAGE
9 GREEN GND	9 No connection
10 Control (AV1 only)	10 Control
11 GREEN	11 No connection
12 No connection	12 No connection
13 RED GND	13 C OUT GND
14 BLANKING GND	14 No connection
15 RED	15 C OUT
16 BLANKING	16 No connection
17 VIDEO OUTPUT GND	17 Y OUT GND
18 VIDEO INPUT GND	18 VIDEO INPUT GND
19 VIDEO OUTPUT	19 Y OUT
20 VIDEO INPUT	20 VIDEO INPUT
21 GND	21 GND

Caution: RGB reservation for only E/E operation when connecting the Pay TV decoder

㊳ **S-VIDEO IN (AV3)**
To connect the S-Video cable to a movie camera or to another VCR that has a S-Video output socket.
- If an S-Video cable is connected, other video input (AV3) is automatically switched off.

㊴ **S-VIDEO OUT**
To connect the S-Video cable to a TV or another VCR that has a S-Video input socket.

㊵ **VIDEO OUT**
To connect the video cable to a TV or another VCR.

㊶ **EDIT**
By connecting the optional Editing Controller (VW-EC310E/VW-EC300E) to this socket, such editing functions as Assemble Editing, Insert Editing and Audio Dubbing can be performed more quickly and efficiently between two VCRs or between a VCR and a movie camera.

To connect the supplied Edit cable to a movie camera or to another VCR for One-Touch-Editing.

㊷ **RF IN**
To connect to the external aerial.

㊸ **AC IN~**
To connect to the main power supply.

㊹ **NORMAL/S-VIDEO OUT**
NORMAL: Normally set to this position.
S-VIDEO OUT (AV1):
Set to this position when connecting the VTR to a TV set equipped with 21-pin Euro-AV Connector with pins for separate Y/C signal input.

㊺ **AV2 (DECODER/EXT)**
To connect to a decoder, another VCR or a satellite receiver.

㊻ **VIDEO IN (AV3)**
To connect the video cable to a movie camera or to another VCR.

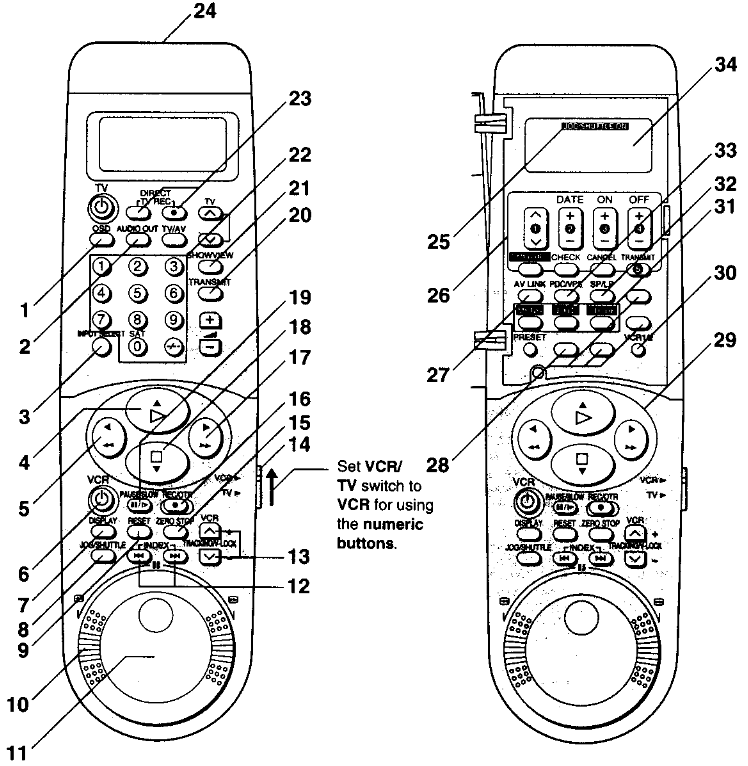
㊼ **AUDIO IN (AV3)**
To connect the audio cable to a movie camera or to another VCR.

㊽ **AUDIO OUT**
To connect the audio cable to a stereo audio system.

㊾ **SAT CONTROL**
To connect the supplied IR cable for satellite receiver control function.

㊿ **RF OUT**
To connect to the aerial terminal on a TV set.

Infra-red Remote Controller



Set **VCR/TV** switch to **VCR** for using the **numeric buttons.**

VCR OPERATION

1 OSD
For the On Screen Display function.

2 AUDIO OUT
To select the desired sound mode.
At the every push of this button, the audio output mode changes as follows.

→Stereo→Left→Right→Normal audio track

The Left (L) and Right (R) Indicators shown which sound mode is selected in the following way.

Stereo:	Both the L and R Indicators appear.
Left:	The L Indicator appears.
Right:	The R Indicator appears.
Normal:	Both the L and R Indicators don't appear.

3 INPUT SELECT
To select the A1, A2 or A3 external recording source.

4 ▷ (PLAY)
To start playback. "▷" is lit.
For the repeat playback function.

5 ◀◀ (REWIND)

In the stop mode:	To rewind the tape.
In the playback mode:	To search backward.
In the rewind mode:	To obtain high speed picture.

"◁◁" is lit.

6 VCR
Press to switch the unit from on to standby mode or vice versa. In standby mode, the unit is still connected to the mains.

7 DISPLAY
To change the indication on the VCR Display or On Screen Display.

→Clock→Counter→Remaining Tape Time

8 JOG/SHUTTLE
Press this to switch to the Jog/Shuttle mode and cause JOG/SHUTTLE ON to appear on the remote controller display. Press again to make JOG/SHUTTLE ON disappear.
In the stop mode: Still picture (Jog/Shuttle mode).
During playback: Still picture (Jog/Shuttle mode).

9 RESET
To reset the tape counter (elapsed time) to "0:00.00".
- The tape counter is automatically reset to "0:00.00" when a video cassette is inserted.

10 Shuttle Ring
Operate after pressing the JOG/SHUTTLE button to switch to the Jog/Shuttle mode.
To adjust playback speed backward or forward.

11 Jog Dial
Operate after pressing the JOG/SHUTTLE button to switch to the Jog/Shuttle mode.
To locate any desired frame with utmost precision.

12 INDEX
For the index search function.

13 ∨ ∧ (VCR), TRACKING/V-LOCK +/–
To select the required programme position (TV station).

For tracking adjustment and vertical locking adjustment
- For manual tracking adjustment
  The – and + buttons are used to adjust the tracking when, for example, noise bars on the picture are better removed manually than by automatic digital tracking control. After making a manual adjustment, press both buttons together to return to automatic digital tracking control.
- For slow tracking adjustment
  When noise bars appear during still or slow playback, switch over to slow playback and adjust with the – or + button to reduce the noise bars.
- For vertical locking adjustment
  Use the – and + buttons to minimize any vertical jitter during still picture playback.
  Adjustment is not possible when the TBC is working.

14 VCR/TV switch

VCR:	Selects the VCR operation mode.
TV:	Selects the TV operation mode.

15 ZERO STOP
For the zero stop function.

16 REC/OTR
To start a recording.

For One Touch Recording.

17 ▶▶ (FAST FORWARD)

In the stop mode:	To fast forward the tape.
In the playback mode:	To search forward.
In the fast forward mode:	To obtain high speed picture.

"▷▷" is lit.

18 □ (STOP)
To stop any playback or recording.

19 PAUSE/SLOW (❚❚/❚▶)
During playback:
- By pressing: Still picture. "▯▯" is lit.
- By pressing for 2 seconds or more: Slow playback. "▯▷" is lit.

During recording: Interrupts recording.

20 TRANSMIT
To transmit the data that has been set on the remote controller to the VCR.

21 SHOWVIEW
For the ShowView programming.

22 Numeric Buttons
To select VCR on the VCR/TV switch.
- To select the programme positions (1–99) of the VCR.

9: ⑨

19: (-/--) → ① → ⑨

- To select the satellite programme positions (SAT1–SAT99)

SAT 9: SAT⓪ → SAT⓪ → ⑨

SAT 19: SAT⓪ → ① → ⑨

- To programme a ShowView number.

23 DIRECT TV REC
For the Direct TV REC function.
Press both buttons at the same time.

24 Infra-red Transmitter
The programming data are transmitted from here to the VCR.

25 JOG/SHUTTLE ON display
While this display is lit, the unit is set to the Jog/Shuttle mode.
- Check that the display is lit before proceeding with a jog or shuttle operation.
- The display is automatically turned off if no operation is performed.

26 Timer Recording Operation Buttons
∨ ∧, DATE, ON, OFF
To programme a timer recording.
TIMER REC:
To turn the timer recording function on and off.
🕓 is lit or not lit.
Once operating timer recording function, the normal VCR operation is not possible unless this button is set to off.
CHECK:
To check timer programmes.
CANCEL:
To cancel the settings made for a timer recording.
TRANSMIT:
To transmit the data that has been set on the remote controller to the VCR.

27 AV LINK
To select the VCR mode or TV mode for AV LINK.

28 No function

29 ▲ ▼ ◀ ▶:
To make selections from On Screen Display.
- These buttons can also be used for playback, stop, rewind and fast forward mode.

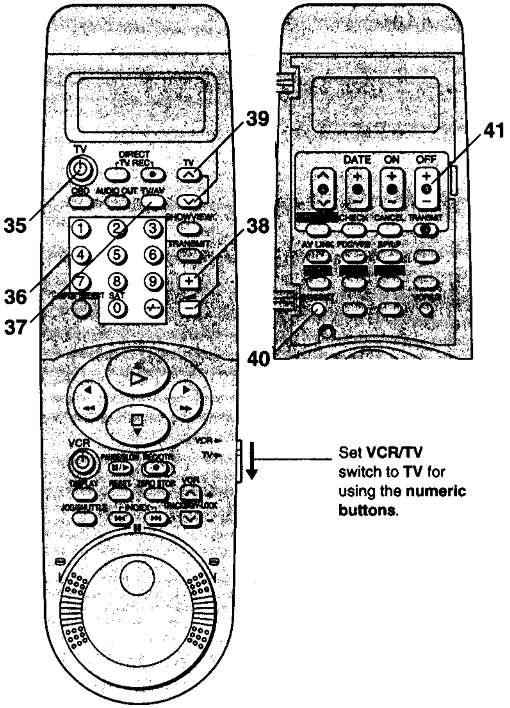
30 VCR 1/2
To select the remote control mode. The selected mode appears on the remote controller display.
VCR 1: Set to this position on both the VCR and remote controller for normal use with one VCR.
VCR 2: Set to this position when using two Panasonic VCRs.

31 On Screen Display Menu Operation Buttons
The buttons written by green characters are used for the on screen display menu operation.
MENU: To make On Screen Display **Main Menu** appear on the TV screen.
EXIT: To exit the menu.
STORE: To confirm the selection, or to store.

32 SP/LP
To select the tape speed desired for recording.
SP gives the best picture quality.
LP gives the longest recording time.

33 PDC/VPS
To set the PDC/VPS recording.

34 Display



Set **VCR/TV** switch to **TV** for using the **numeric buttons.**

TV OPERATION

Refer to page 51.

35 POWER (TV)
To switch the TV from on to standby mode or vice versa. In standby mode, the TV is still connected to the mains.
- With some TV models, it may only be possible to switch the TV to standby mode using this button. In this case, use **TV/AV** or **∨ ∧ (TV)** to switch the TV on.

36 Numeric Buttons
Selects programme positions (1–99) of the TV. Ensure that **VCR/TV** switch is set to TV.

37 TV/AV
To select the TV input.

38 ◢
Adjusts the volume of the TV.

39 ∨ ∧ (TV)
To select the required programme position (TV station) of the TV.

40 PRESET
To set the remote controller for operation of the TV.

41 OFF
Sets the remote controller for operation of the TV.

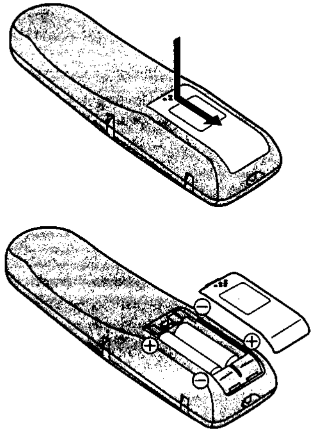
Power Source for the Remote Controller

The remote controller is powered by 2 "AA", "UM3" or "R6" size batteries. The life of the batteries is about one year, although this depends on the frequency of use.

Precautions for Battery Replacement

- Load the new batteries with their polarity (⊕ and ⊖) aligned correctly.
- Do not apply heat to the batteries, or an internal short-circuit may occur.
- If you do not intend to use the remote controller for a long period of time, remove the batteries and store them in a cool and dry place.
- Remove spent batteries immediately and dispose of them.
- Do not use an old and a new battery together, and never use an alkaline battery with a manganese battery.

Installing the Batteries



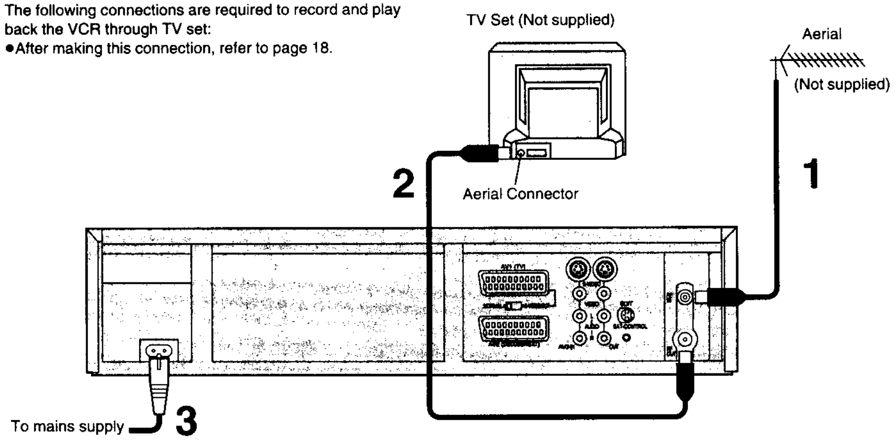
Connections

This tells you how to connect with an aerial, TV, etc.

Basic Connections

The following connections are required to record and play back the VCR through TV set:

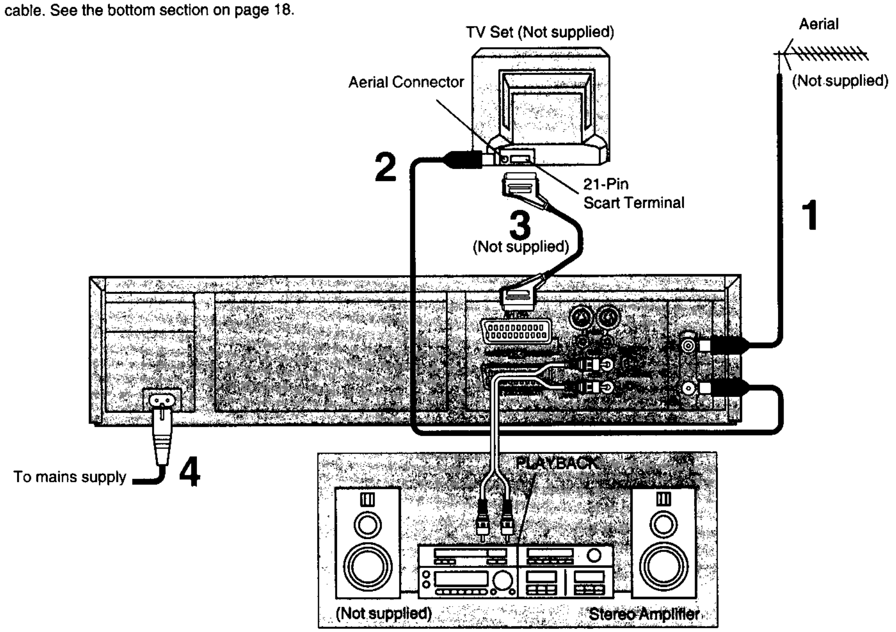
- After making this connection, refer to page 18.


TV Set (Not supplied)
Aerial
(Not supplied)
1
2
Aerial Connector
To mains supply
3

Connection to a TV Set with 21-Pin Scart Terminal

- After making this connection, refer to page 19 or 20.
- Use the fully-wired 21-pin scart cable in step **3** when connecting this VCR to the **TV with the "NEXTVIEWLINK", "Easy Link" or "Megalogic"-logo**, otherwise it will not be possible to operate **"Preset Download"** or **"Direct TV REC"**.

Note:
Set the RF output channel of the VCR to "– –" (RF OFF) when the VCR is connected to the TV via the 21-pin scart cable. See the bottom section on page 18.


TV Set (Not supplied)
Aerial
(Not supplied)
Aerial Connector
2
21-Pin
Scart Terminal
3
(Not supplied)
1
To mains supply
4
PLAYBACK
(Not supplied)
Stereo Amplifier

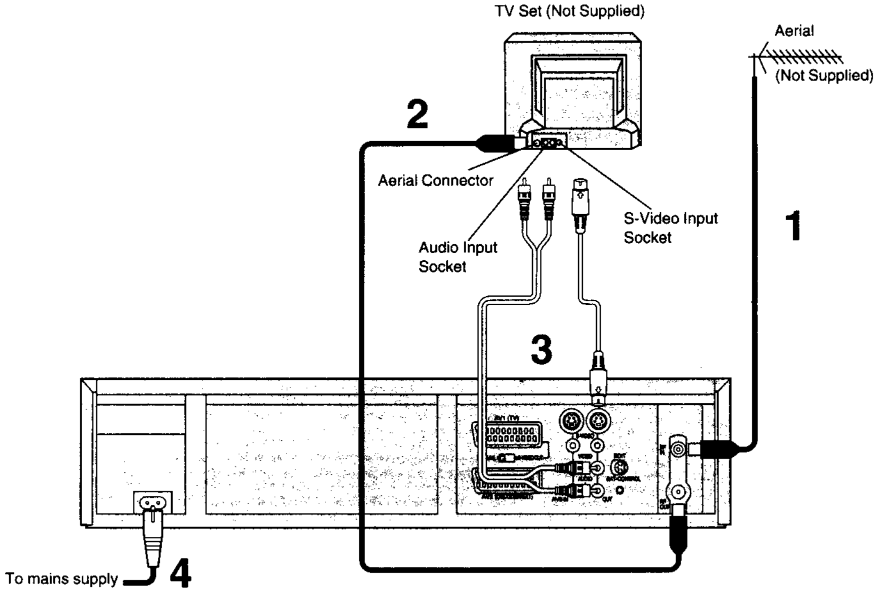
•Connection to a Stereo Amplifier

Connection to a TV Set with S-Video Socket

This VCR uses the S-VHS format that makes it possible to obtain high resolution and high picture quality by using the high-performance S-VHS video cassette tapes.

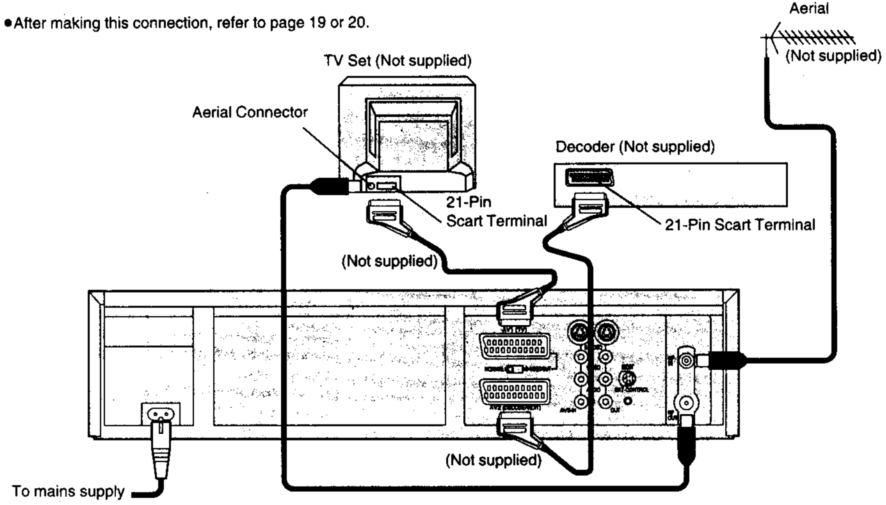
The conventional video sockets of VCRs output (input) a combination of the luminance signal (Y) and colour signal (C) which are recorded on the video tape. The new S (Separate)-Video Socket allows separate transmission of signals in order to obtain clearer pictures.

The connection with the S-Video Cable can also be used for playback of a tape that was recorded in the conventional VHS system. The "S" in the "S-Video Socket" stands for "SEPARATED Y/C" not for "S-VHS".


TV Set (Not Supplied)
Aerial
(Not Supplied)
2
Aerial Connector
S-Video Input Socket
Audio Input Socket
1
3
To mains supply
4

Connection to a Decoder

- After making this connection, refer to page 19 or 20.


Aerial
(Not supplied)
TV Set (Not supplied)
Aerial Connector
Decoder (Not supplied)
21-Pin Scart Terminal
21-Pin Scart Terminal
(Not supplied)
(Not supplied)
To mains supply

Notes:

- If the TV set is provided with an RGB-compatible connector, connect the 21-pin AV cable from the VCR to this connector. Use the fully-wired 21-pin scart cable for connecting the TV set and VCR and for connecting the VCR and decoder.
- Set the RF output channel of the VCR to "--" (RF OFF) when the VCR is connected to the TV via the 21-pin scart cable. See the bottom section on page 18.
- When the decoder is connected to the AV2 socket, **AV2 Connection** must first be set to **DECODER**. (See page 48.)

AV LINK

With this button the connected colour TV set can be switched from TV mode to VCR mode (vice versa) when it is connected by means of 21-pin scart cable.

This makes a variety of functions possible, such as simultaneous recording and viewing when a Pay TV decoder or a satellite receiver has been connected.

VCR mode (VCR Indicator lights):
To enjoy sound and pictures from the VCR.

- When **MENU** is pressed and the OSD (On Screen Display) screen is displayed, the unit also automatically switches to VCR mode.
  However, if the unit is originally in TV mode, the VCR indicator is not displayed.
- The unit also automatically switches to VCR mode when playback is started. However, the unit cannot be returned to TV mode during playback.

TV mode (VCR Indicator goes off):
To watch another programme on the TV while recording on the VCR.

- Select the programme to be watched using the TV set's tuner.
- The sound and pictures of a different channel are received by the VCR.

VCR		**TV set**
Power On	VCR mode	AV input selected
	TV mode	Input from TV set's tuner*
Power Off	—	Input from TV set's tuner

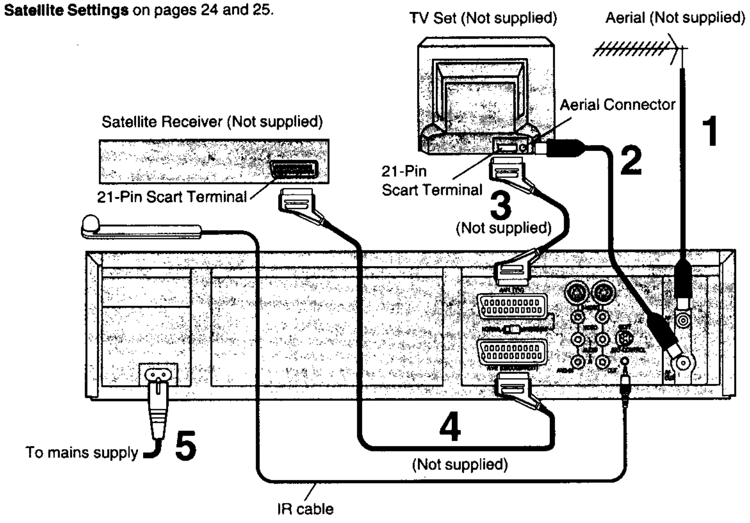
*When the VCR is set to the TV mode and the Pay TV channel is selected, the signals will still be scrambled even when Pay TV is selected by the TV set's tuner. At a time like this, either set the VCR to the VCR mode or switch the TV set's input signals to AV input.

Connection to a Satellite Receiver

- The satellite receiver control functions are activated when connection is made to one of the satellite receivers found on the attached list of compatible satellite receivers, provided that the settings from pages 23 to 25 have been performed. Also make absolutely sure that the satellite receiver is installed in a location as per the figure below.
- Also refer to the operating instructions for the satellite receiver.
- The unit may not operate properly if it has not been installed in a satisfactory position.

Ⓐ By means of 21-pin Scart Cable

After making this connection, proceed with **Preset Download** or **Auto Setup** on pages 19 or 20 and then with **Satellite Settings** on pages 24 and 25.

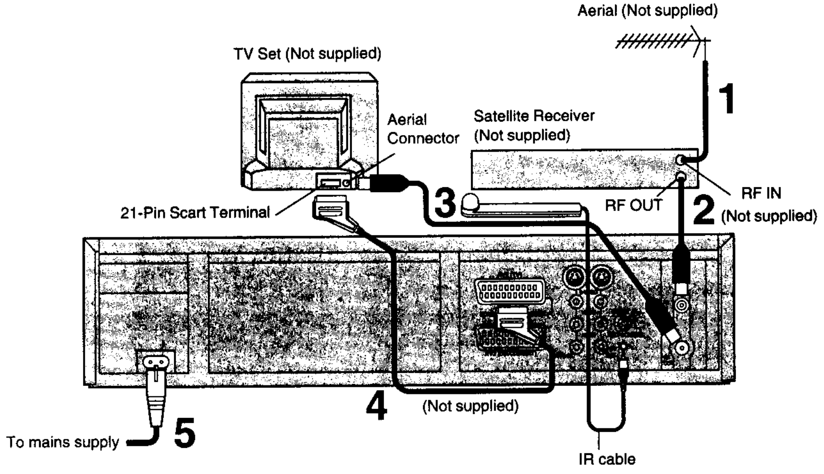

TV Set (Not supplied)
Aerial (Not supplied)
Aerial Connector
1
Satellite Receiver (Not supplied)
2
21-Pin Scart Terminal
21-Pin Scart Terminal
3
(Not supplied)
To mains supply
5
4
(Not supplied)
IR cable

Notes:

- Set the RF output channel of the VCR to "--" (RF OFF) when the VCR is connected to the TV via the 21-pin scart cable. See the bottom section on page 18.
- When a decoder is to be connected in addition to the satellite receiver, read the Operating Instructions accompanying the decoder.
- The AV LINK function may not work, depending on the type of satellite receiver.
- When the satellite receiver is connected to the AV2 socket, **AV2 Connection** must first be set to **EXT**. (See page 48.)

Ⓑ By means of RF Coaxial Cable

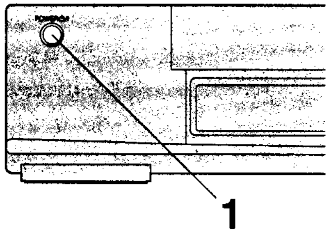
After making this connection, proceed with **Preset Download** or **Auto Setup** on pages 19 or 20 first, and then with **Satellite Tuning** on page 23 and **Satellite Settings** on pages 24 and 25.

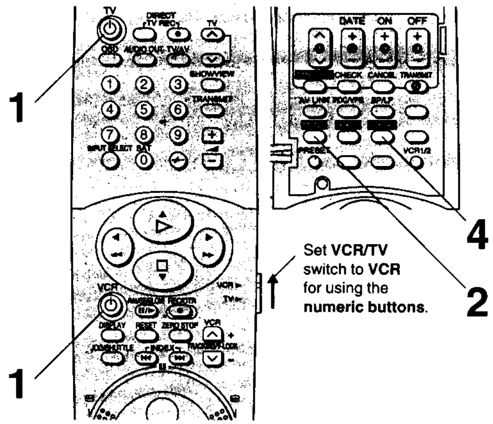

Aerial (Not supplied)
TV Set (Not supplied)
1
Aerial Connector
Satellite Receiver (Not supplied)
RF IN
21-Pin Scart Terminal
3
RF OUT
2
(Not supplied)
4
(Not supplied)
To mains supply
5
IR cable

RF ouput channel of the satellite receiver should be adjusted away from channel 36, which is used by the VCR, e.g. re-adjust to channel 33.

Note:
Set the RF output channel of the VCR to "--" (RF OFF) when the VCR is connected to the TV via the 21-pin scart cable.
See the bottom section on page 18.

Tuning the TV to your VCR




1
1
TV
DIRECT TV REC
DATE
ON
OFF
CHECK
CANCEL
TRANSMIT
PRESET
VCR1/2
VCR
4
2

Set **VCR/TV** switch to **VCR** for using the **numeric buttons**.

The VCR supplies a signal to the TV set via the RF coaxial cable on channel 36.
It is possible to view the video picture on your TV in the same way that you watch TV broadcasts.

If you have connected the VCR to the TV through the 21-pin scart terminal, then you do not need to follow the procedure mentioned below.

Operations

1

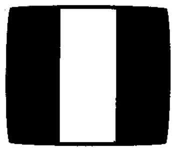
Turn on the TV and VCR.

2

Keep **MENU** pressed for 5 seconds or more.
- Press the button until "Ch" appears in the VCR display.

3

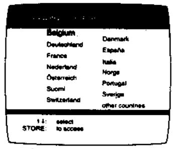
On Screen Display



(Test Pattern)

Set the TV to an unused position which you wish to use for your video playback.
- Tune the TV until the test pattern appears on the screen.

4


Belgium
Deutschland
France
Nederland
Österreich
Suomi
Switzerland
Denmark
España
Italia
Norge
Portugal
Sverige
other countries
↑↓: select
STORE: to access

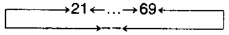
(Country-Selection)

Press **STORE** to exit the Test Pattern screen. The **Country-Selection** display appears.
Now refer to page 20.

Use the remote controller for changing the RF output channel setting:
If you are encountering interference from a TV broadcast on this video channel, you may readjust to another free channel (21–69).
Follow the steps **1** and **2** above.

3 Enter the desired channel number (21–69) by using the **numeric buttons** or the ∨ ∧ of the remote controller.
- *Set the RF output channel of the VCR to "– –" (RF OFF) when the VCR is connected to the TV via the 21-pin scart cable.*

Press the **"0" numeric button** or the ∨ ∧ buttons to display "– –".

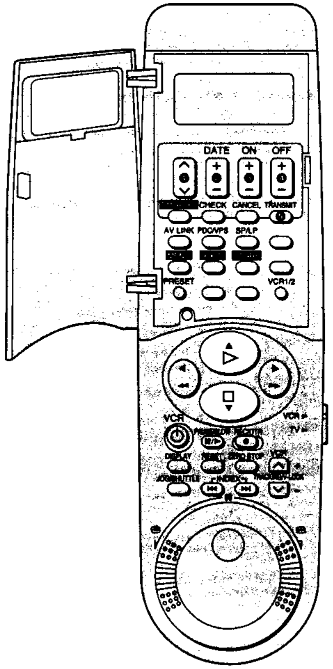


(RF OFF)

4 Press **STORE** to finish the setting mode.
- Retune your TV to the new channel for the VCR.
- After the **Country-Selection** is set, the **Country-Selection** screen will not be displayed even if the RF output channel is changed and **STORE** is pressed.

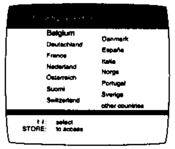
Preset Download

When the VCR is connected to **a TV with the "NEXTVIEWLINK", "Easy Link" or "Megalogic"-logo using the fully-wired 21-pin scart cable**, the station list data will be copied from the TV to the VCR and the TV channel will be preset on the VCR. This function is known as **"Preset Download (Download from TV)"**.

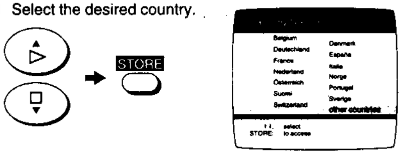

DATE
ON
OFF
CHECK
CANCEL
TRANSMIT
AV LINK
PDC/VPS
SP/LP
PRESET
VCR1/2
VCR

When the VCR is turned on after being connected to **a TV with the "NEXTVIEWLINK", "Easy Link" or "Megalogic"-logo using the fully-wired 21-pin scart cable**, follow the procedure below.

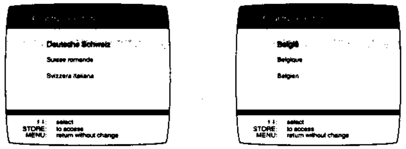
On Screen Display


Belgium
Deutschland
France
Nederland
Österreich
Suomi
Switzerland
Denmark
España
Italia
Norge
Portugal
Sverige
other countries
↑↓: select
STORE: to access

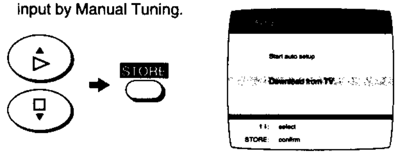
1 Select the desired country.


STORE
Belgium
Deutschland
France
Nederland
Österreich
Suomi
Switzerland
Denmark
España
Italia
Norge
Portugal
Sverige
other countries
↑↓: select
STORE: to access

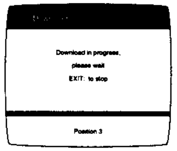
- When Switzerland or Belgium has been selected, operation moves to the screen which follows. Select the item in accordance with the language required.


Deutsche Schweiz
Suisse romande
Svizzera italiana
↑↓: select
STORE: to access
MENU: return without change
België
Belgique
Belgien
↑↓: select
STORE: to access
MENU: return without change

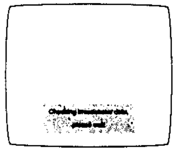
2 Select **Download from TV**.
- When performing Manual Tuning described hereafter on page 43, be sure to select **Start auto setup**. This is because when the tuning contents for the TV are changed, this information is downloaded to the VCR again, possibly erasing the independent contents input by Manual Tuning.


STORE
Start auto setup
Download from TV
↑↓: select
STORE: confirm

- Downloading is started automatically.


Download in progress,
please wait
EXIT: to stop
Position 3

- When the downloading has finished, Short ATP (Auto Tuner Preset) is started automatically.


Checking broadcaster data,
please wait

- When Short ATP has finished, the lowest channel position at which a broadcast can be tuned in is received.

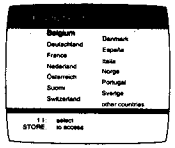
Note:
Download will not work when the VCR is connected to a TV with the "NEXTVIEWLINK", "Easy Link" or "Megalogic"-logo **but without a fully-wired 21-pin scart cable.**
In this case, perform **Auto Setup** on the next page.

Auto Setup

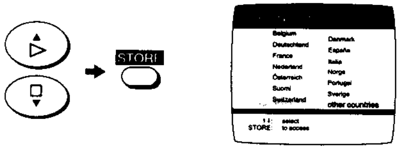
Auto Setup

When the VCR is turned on after connecting to a TV other than a TV with the "NEXTVIEWLINK", "Easy Link" or "Megalogic"-logo using the fully-wired 21-pin scart cable, follow the procedure below.

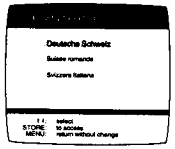
On Screen Display

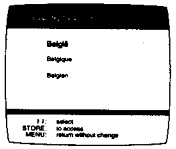

Belgium
Deutschland
France
Nederland
Österreich
Suomi
Switzerland
Danmark
España
Italia
Norge
Portugal
Sverige
other countries
↑↓: select
STORE: to access

Select the desired country.

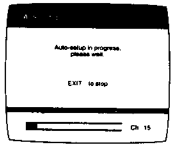

STORE
Belgium
Deutschland
France
Nederland
Österreich
Suomi
Switzerland
Danmark
España
Italia
Norge
Portugal
Sverige
other countries
↑↓: select
STORE: to access

- When Switzerland or Belgium has been selected, operation moves to the screen which follows. Select the item in accordance with the language required.


Deutsche Schweiz
Suisse romande
Svizzera Italiana
↑↓: select
STORE: to access
MENU: return without change


België
Belgique
Belgien
↑↓: select
STORE: to access
MENU: return without change

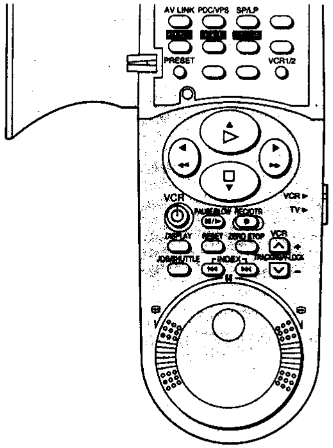
Auto Setup (Auto tuning and Auto clock setting) starts automatically.


Auto-setup in progress.
please wait.
EXIT to stop
Ch 15

- The Auto setup is searching for TV station from VHF minimum to UHF maximum and memorizing the data for every programme position. The other programme positions are skipped.
- The Auto setup takes five or more minutes to complete the search for TV station and the clock setting.

Notes:

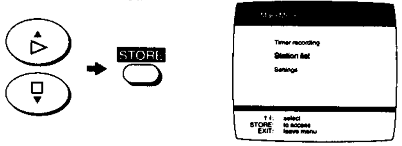
- If VCR is not correctly set by Auto setup, see **Various Settings** on pages 43–46.
- Auto clock setting will not work correctly if teletext information is not available. If the clock setting screen appears after auto tuning has been completed, set clock manually. See page 46.
- Clock information is subject to teletext information. If year information is not in teletext or time information in teletext is incorrect, set clock manually. See page 46.


AV LINK
PDC/VPS
SP/LP
PRESET
VCR1/2
VCR
VCR ▶
TV ▶
DISPLAY
RESET
ZERO STOP
JOG/SHUTTLE
INDEX
TRACKING/LOCK

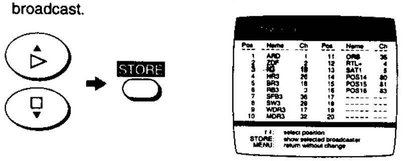
Viewing the TV station list

1 Press **MENU**.

2 Select **Station list**.


STORE
Timer recording
Station list
Settings
↑↓: select
STORE: to access
EXIT: leave menu

3 Select the desired TV station, if you want to view the broadcast.

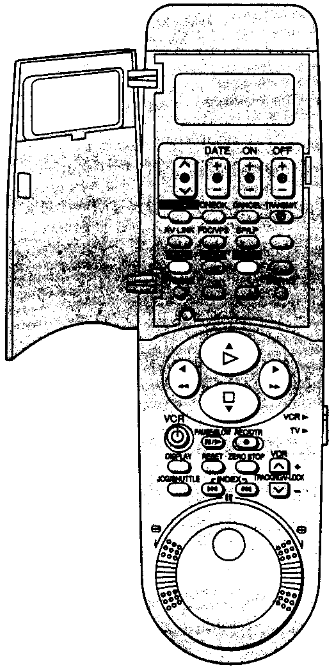


Pos	Name	Ch	Pos	Name	Ch
1	ARD	1	11	ORB	35
2	ZDF	2	12	RTL+	4
3	N3	18	13	SAT1	5
4	HR3	26	14	POS14	80
5	BR3	18	15	POS15	81
6	RB3	3	16	POS16	83
7	SFB3	36	17	------	---
8	SW3	29	18	------	---
9	WDR3	17	19	------	---
10	MDR3	32	20	------	---

↑↓: select position
STORE: show selected broadcaster
MENU: return without change

Auto Setup Feature Important Information (Only after performing Auto Setup)

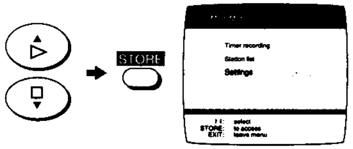
The Auto Setup feature tunes in your channels automatically.
However, under certain circumstances in some transmission areas certain channels may not be assigned a channel name or their normal channel position. If this is the case they will need to be tuned manually. If Auto setup is not successful, please follow the steps below.


DATE
ON
OFF
AV LINK
PDC/VPS
SP/LP
VCR
VCR ▶
TV ▶
DISPLAY
RESET
ZERO STOP
JOG/SHUTTLE
INDEX
TRACKING/LOCK

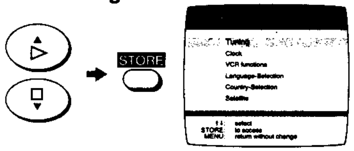
Operations

1 Press **MENU**, and then select **Settings**.

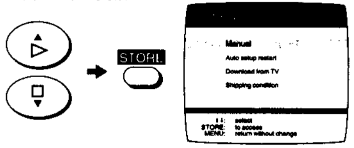
On Screen Display


STORE
Timer recording
Station list
Settings
↑↓: select
STORE: to access
EXIT: leave menu

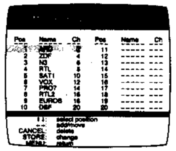
2 Select **Tuning**.


STORE
Tuning
Clock
VCR functions
Language-Selection
Country-Selection
Satellite
↑↓: select
STORE: to access
MENU: return without change

3 Select **Manual**.


STORE
Manual
Auto setup restart
Download from TV
Shipping condition
↑↓: select
STORE: to access
MENU: return without change

4 The STATION LIST is now displayed. (Channel information will vary.)



Pos	Name	Ch	Pos	Name	Ch
1	ARD	2	11	------	---
2	ZDF	4	12	------	---
3	N3	6	13	------	---
4	RTL	8	14	------	---
5	SAT1	10	15	------	---
6	VOX	12	16	------	---
7	PRO7	14	17	------	---
8	RTL2	16	18	------	---
9	EURO6	18	19	------	---
10	DSF	20	20	------	---

↑↓: select position
←→: add/move
CANCEL: delete
STORE: change
MENU: return

If all station names are displayed, no manual tuning adjustment is needed.

However, follow the steps on the next page when there is a ∗ mark at the beginning of the station name display, even if the station name is displayed.

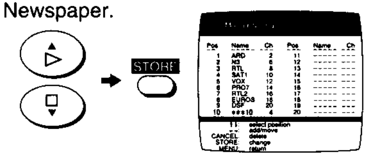
If manual tuning adjustment is required, follow the steps indicated below.

When changing or installing station name;

Operations

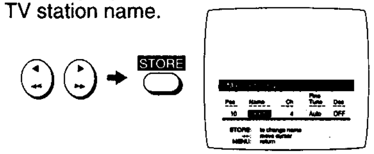
Follow steps **1** to **3** on the previous page.

4 Select the station(s) named ∗□□□□.
Establish which channel you are viewing, by checking your TV Guide/ Newspaper.

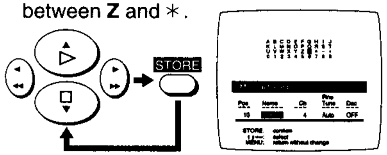


- "□" indicates the position number or station name. This is the same as steps **6** and **7**.

5 Next, highlight the TV station name.

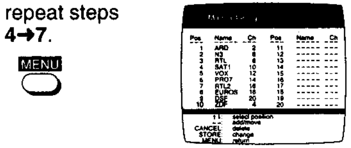


6 Enter characters into **all** five ∗□□□□ positions, from the table using the arrows and press **STORE** after each character. Use blank space if required, to enter a blank select the area between **Z** and ∗.



7 Press **MENU** once.

If any other TV station names are marked ∗□□□□, repeat steps **4→7.**



Note:
See pages 43 and 44 for changing the programme position.

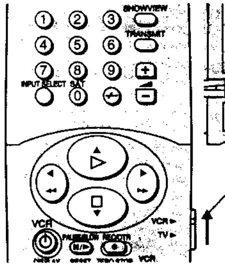
Satellite Settings

Satellite Tuning

When the RF connection of Ⓑ on the satellite receiver connection page has been performed, the following settings must be carried out in order to activate satellite control.
These settings are not necessary when the 21-pin cable Ⓐ has been used for the connection. (See page 16.)

Preparations

- Confirm that the TV is on and the VCR viewing channel is selected.
- Turn on the VCR.



Set the **VCR/TV** switch to **VCR** to use the **numeric buttons**.

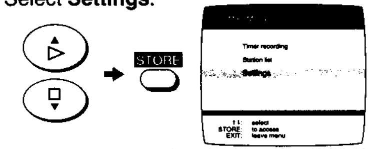
Follow the operation guide on screen display.

Operations

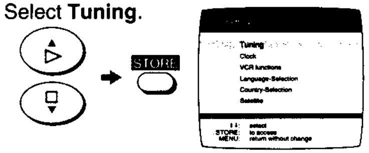
1 Press **MENU.**

2 Select **Settings.**

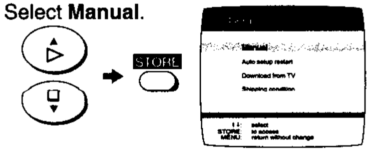
On Screen Display



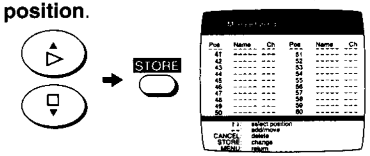
3 Select **Tuning.**



4 Select **Manual.**

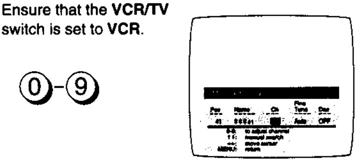


5 Select unoccupied **Programme position.**

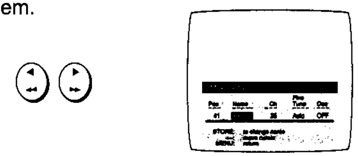


6 Select a channel **(Ch)** on which satellite broadcasts can be viewed.

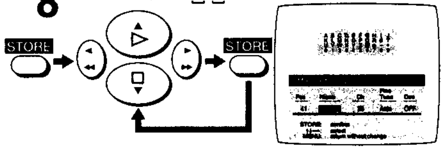
- Ensure that the **VCR/TV** switch is set to **VCR.**



7 Select the TV station name **(Name)** item.



8 Enter **"SAT _ _".**



- "_ _" indicates two blank spaces. Enter the space to the right of **"Z"** on the keyboard.
- **"SAT"** is a special term; use it only when a satellite receiver is connected.
- If **"SAT"** is already displayed, this step is unnecessary.

9 Press **MENU,** and then press **EXIT.**

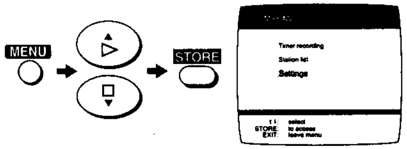
Note:
When **Preset Download (Download from TV)** has been performed, change the name of the channel for viewing the satellite broadcast on the TV to **"SAT"** instead of executing this page (refer to the operating instructions of the TV). If this step is taken, Preset Download is performed again automatically, and the name of the VCR's SAT channel is also changed.

Satellite Setting

Proceed with the settings described below in order to activate the satellite receiver control functions.
These settings are supported only by the satellite receivers found on the attached list of compatible satellite receivers.

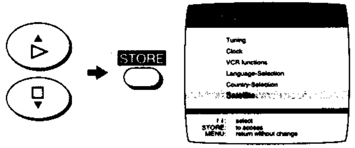
1 Press **MENU**, and then select **Settings**.

On Screen Display



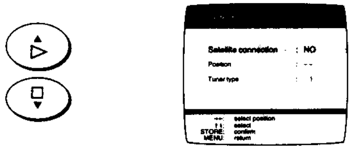
Timer recording
Station list
Settings
↑↓: select
STORE: to access
EXIT: leave menu

2 Select **Satellite**.



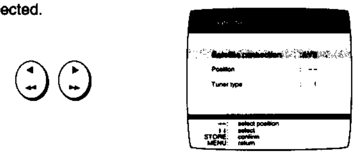
Tuning
Clock
VCR functions
Language-Selection
Country-Selection
Satellite
↑↓: select
STORE: to access
MENU: return without change

3 Select **Satellite connection**.



Satellite connection : NO
Position : - -
Tuner type : 1
←→: select position
↑↓: select
STORE: confirm
MENU: return

4 Select the position where the satellite receiver is connected.

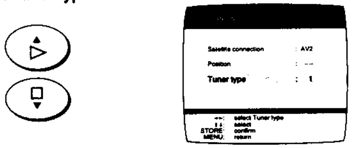


Satellite connection : AV2
Position : - -
Tuner type : 1
←→: select position
↑↓: select
STORE: confirm
MENU: return

NO:	When the satellite receiver is not connected to the VCR.
RF:	When the satellite receiver is connected to RF IN socket of the VCR.
AV1:	When the satellite receiver is connected to AV1 socket of the VCR.
AV2:	When the satellite receiver is connected to AV2 socket of the VCR.

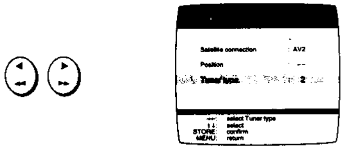
- The **Position** item is also automatically set when **RF** has bee selected, and cannot be changed here.

5 Select **Tuner type**.



Satellite connection : AV2
Position : - -
Tuner type : 1
←→: select Tuner type
↑↓: select
STORE: confirm
MENU: return

6 First check the attached list of compatible satellite receivers, and then set the tuner type number.
It is not possible to control a receiver which is not on the attached list of compatible satellite receivers.



Satellite connection : AV2
Position : - -
Tuner type : 2
←→: select Tuner type
↑↓: select
STORE: confirm
MENU: return

- It is also possible to select by pressing numeric button.

7 Press **STORE**, and then press **EXIT**.

Preset Type

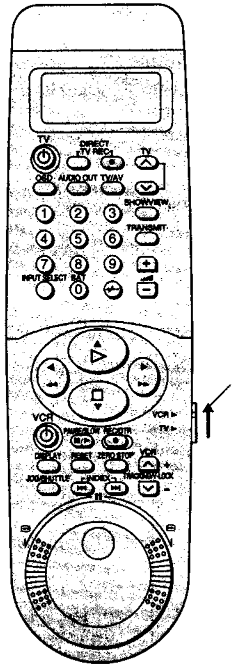
The satellite receiver mode must be set before attempting to select satellite channels or perform timer recording. The procedure to set the mode can be divided into the following 5 types by satellite receiver. Check which one applies on the attached list before proceeding.

Preset type	Controllable functions
A	Keep the satellite receiver's power ON.
B	No action needs to be taken. (The satellite receiver's power may even be OFF.)
C	After having turned on the satellite receiver's power, select the 2-digit display mode.
D	Turn on the satellite receiver's power, and switch to the tuner used by the VCR.
E	Turn on the satellite receiver's power, and switch to the tuner used by the VCR. Then select the 2-digit display mode for the satellite receiver.

Check out the compatible satellite receiver list on the attached list thoroughly before purchasing a new receiver.

Notes:
- The VCR may not be able to control some products or models of satellite receiver, due to the choice of remote control coding being beyond our control.
- Check that the satellite receiver can be properly controlled.
- Try satellite broadcast timer recording once to check that timer recording works properly.

How to select the satellite channel



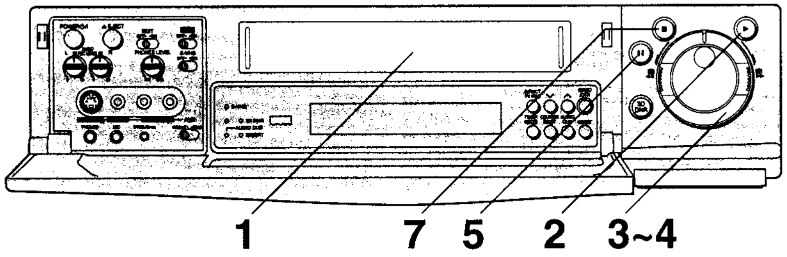
Set **VCR/TV** switch to **VCR** for using the **numeric buttons.**

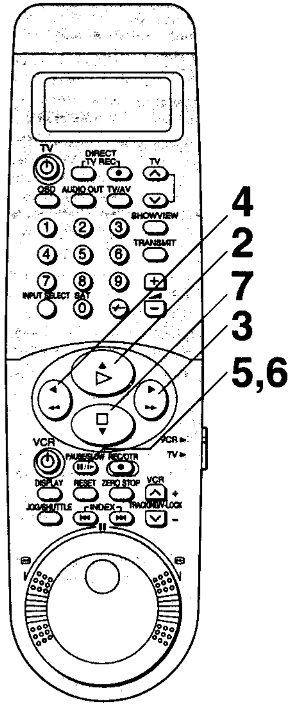
Press the numeric buttons on the remote controller.
- Ensure that the **VCR/TV** switch is set to **VCR**.

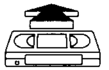
SAT SAT
SAT 9: ⓪ → ⓪ → ⑨
SAT
SAT 19: ⓪ → ① → ⑨

- There will be a slight delay after pressing a button before channel change occurs. This is due to signal conversion.
- The range of satellite channels available for selection is 1 through 99.
- With some satellite receivers, it is not possible to select satellite channels up to 99.
- With some satellite receivers, it is not possible to select any more channels beyond the highest number of the channels which can be selected by the satellite receiver if that number is 99 or less.
- With some satellite receivers, it is necessary to leave a short interval after selecting one channel before attempting to select another channel.
- If the display on the satellite receiver fails to indicate the channels, refer to the operating instructions of the satellite receiver and follow the procedure for displaying the channels.

Playback





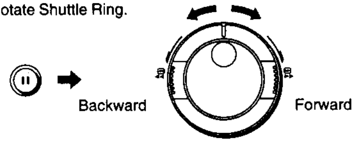
Operations		Display Symbols	
1		◙	Insert a recorded cassette tape.
2	▷	▷	Start viewing the picture.
3	▶▶	▷▷	Search forward by tapping **▶▶ (FAST FORWARD)**. ●To change back to normal playback, press ▷ **(PLAY)**.
4	◀◀	◁◁	Search backward by tapping **◀◀ (REWIND)**. ●To change back to normal playback, press ▷ **(PLAY)**.
5	PAUSE/SLOW II/I▷	II	View a still picture. ●Press **PAUSE/SLOW** or **II (PAUSE/STILL)** ●To continue the normal playback, press ▷ **(PLAY)**, **PAUSE/SLOW II (PAUSE/STILL)**
6	PAUSE/SLOW II/I▷	II▷	View a slow motion picture. ●Keep **PAUSE/SLOW** pressed for 2 seconds or more. ●To continue the normal playback, press ▷ **(PLAY)**.
7	□		Stop viewing the picture.

Note:
If you keep **▶▶ (FAST FORWARD)** or **◀◀ (REWIND)** pressed in step **3** or **4**, search playback is activated while the button is pressed, and operation returns to normal playback when the button is released.

Other Playback Functions

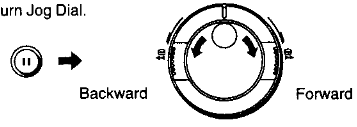
To change the Playback Speed

1 Press **II (PAUSE/STILL)** on the VCR or JOG/SHUTTLE on the remote controller.
2 Rotate Shuttle Ring.



To locate the Desired Picture Exactly

1 Press **II (PAUSE/STILL)** on the VCR or JOG/SHUTTLE on the remote controller.
2 Turn Jog Dial.



To obtain High Speed Picture during Fast Forward or Rewind

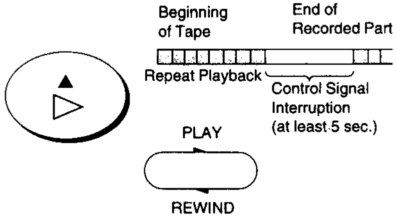
Keep **▶▶ (FAST FORWARD)** pressed during fast forward.
Keep **◀◀ (REWIND)** pressed during rewind.

◀◀ ▶▶

- The same operation can also be performed by turning the Shuttle Ring on the VCR.

To playback the Recorded Part Repeatedly

Keep ▷ **(PLAY)** pressed for 5 seconds or more.
"R" appears on the On Screen display.



- Press □ **(STOP)** to release from Repeat Playback mode.

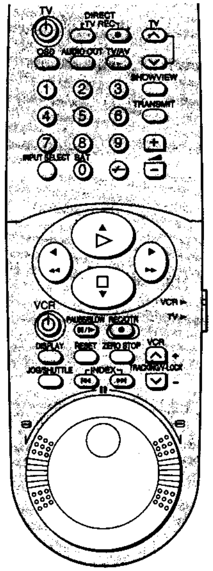
To return to a Specified Scene

1 Press **RESET** to set the counter to 0:00.00.

RESET

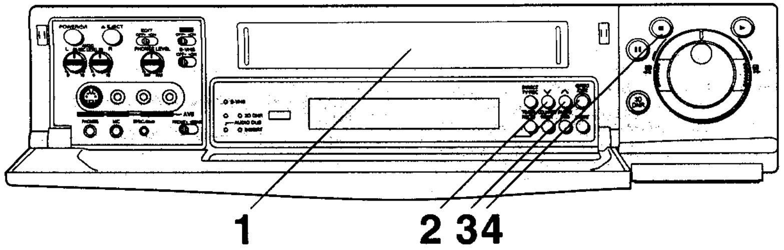
2 After playback, press **ZERO STOP** in the stop mode.
  - The tape will be rewound or fast forwarded to 0:00.00 approximately.

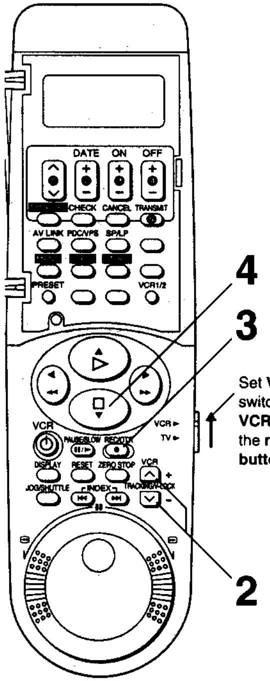
ZERO STOP



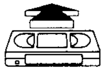
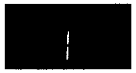
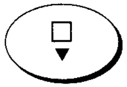
Notes:
- Audio reproduction of linear (conventionally recorded) tapes will be monaural when played back on the FM Hi-Fi video recorders.
- Cue, review or slow playback will be automatically released after 10 minutes, and still playback after 5 minutes.
- In LP mode only:
  1. During any playback mode other than normal playback, the picture may have some noise bars, the colour may be unstable, or a black and white picture may appear.
  2. When playing back a tape which was recorded on another VCR, it may be necessary to adjust the Tracking Control. In some cases the picture quality may still be inferior. This is due to limitation of format.

Manual Recording





Set **VCR/TV** switch to **VCR** for using the **numeric buttons.**

	Operations	Display Symbols	
1			Insert a video cassette with an intact erasure prevention tab. •If it has already been inserted, press **POWER** ⏻/I (**VCR** ⏻) to turn the VCR on.
2	VCR ⋀ + TRACKING/V-LOCK ⋁ −		Select TV station. •It is also possible to select by pressing **numeric button.** •Ensure that the **VCR/TV** switch is set to **VCR.**
3	REC/OTR ●		Start recording.
4			Stop recording.

To select the Desired Tape Speed

Press **SP/LP** before recording.

SP/LP

To interrupt Recording

Press **PAUSE/SLOW** or **II (PAUSE/STILL)** during recording.
Press again to continue recording.

PAUSE/SLOW (II/I▶)

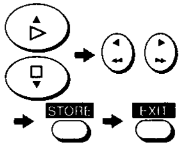
To record One TV Programme while Viewing Another Programme

1 Refer to the manual recording operations steps **1** to **3**.

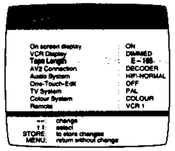
2 Select the TV programme on your TV set you wish to view at the present time.

To display the Approximate Remaining Tape Time

1 Select **Tape Length** from On Screen Display and select the corresponding cassette tape length.
See page 48.



On Screen Display



On screen display : ON
VCR Display : DIMMED
Tape Length : E - 180
AV2 Connection : DECODER
Audio System : HIFI-NORMAL
One-Touch-Edit : OFF
TV System : PAL
Colour System : COLOUR
Remote : VCR 1

◀▶: change
↑↓: select
STORE: to store changes
MENU: return without change

◀ E-180: For E30, -60, -90, -120 and -180 tapes.
E-195: For E195 tape.
E-240: For E240 tape.
E-260 ▶: For E260 and -300 tapes.

2 Press **DISPLAY.**

DISPLAY

→Clock→Counter→**Remaining Tape Time**

•The remaining tape time may not be displayed correctly depending on the tape used.

Recording of Stereo and Bilingual Programmes

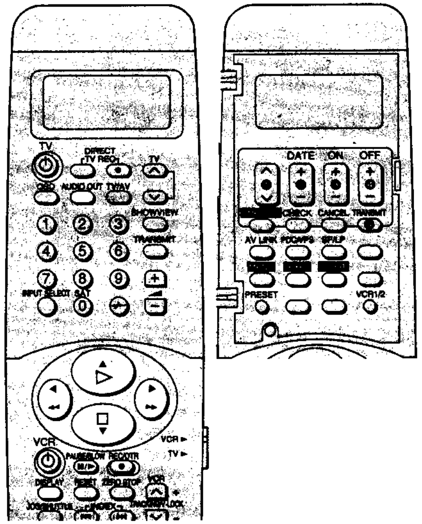
1 Recording is automatically made in the stereo or bilingual mode. This prevents errors in the selection of the dubbed or the original language.

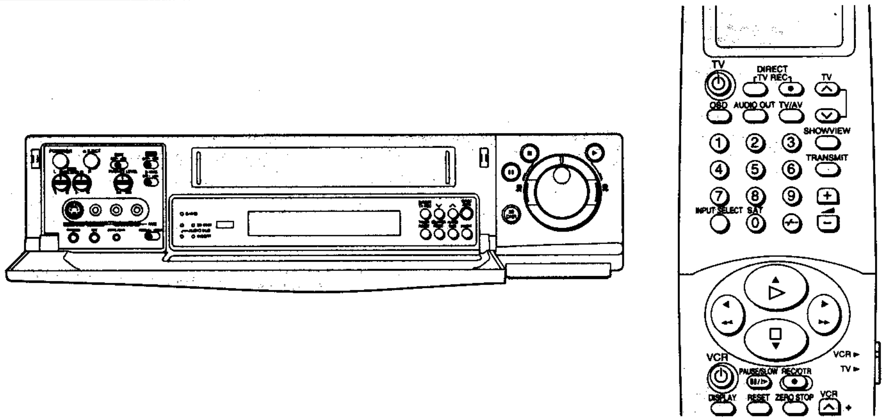
2 During playback press **AUDIO OUT** to select the desired sound mode. See page 8.

AUDIO OUT

Notes:

- When a video cassette with a broken off tab is inserted, the "▩" indication will flash to indicate that recording is not possible.
- The recording pause mode will be automatically released after 5 minutes, and be back to the stop mode.





One-Touch Recording (OTR)

Whenever you are in a hurry to start a timer recording with automatic stop in your absence, simply set the recording duration by pressing **REC/OTR** repeatedly.
The duration indicated on the VCR display changes by pressing **REC/OTR** as follows:

→Counter display (normal recording mode)→30 (min.)
240← 180← 120← 60←
(min.) (min.) (min.) (min.)

Preparation

Insert a video cassette with an intact erasure prevention tab.

Operations

1 Ready the video source which is to be recorded, and start recording.

2 Press **REC/OTR** repeatedly to select the desired recording duration.

- The VCR will automatically switch off when OTR is completed. To turn the VCR on again, press **POWER ⏻/I (VCR ⏻)**.

Notes:
- The OTR function works during normal recording or Direct TV REC.
- When the tape reaches its end during OTR, the VCR will turn itself off.
- To stop OTR at any time, press □ **(STOP)** or **POWER ⏻/I (VCR ⏻)**.

Direct TV REC

When you want to record a TV programme while you are watching TV, simply press the **DIRECT TV REC**.

However, this function works only when this VCR is connected to **a TV with the "NEXTVIEWLINK", "Easy Link" or "Megalogic"-logo using the fully-wired 21-pin scart cable.**

Preparation

Insert a video cassette with an intact erasure prevention tab.

Operation

When you are watching TV and you want to record the programme quickly, press the **DIRECT TV REC**.
Then the recording will start.

DIRECT
TV REC

- It is not necessary to adjust the programme position of your VCR to the TV station that you are watching now.

Notes:
- Even if the programme positions are not the same, the programme position of the VCR switches to the same position of the TV. Upon completion of the recording, the programme position of the VCR returns to the previous position.
- In some cases, it may not be possible to change the TV channel during Direct TV REC.
- Check beforehand whether the tape may be used for recording.

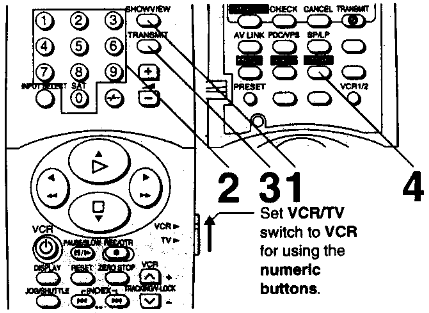
Timer Recording

ShowView Programming

Programming is now easier than ever: simply enter the ShowView number provided in the programme schedule column carried by newspapers and magazines.
ShowView numbers are numbers which are assigned to each programme listed in the TV programme schedule carried in newspapers and TV guides. When these numbers are entered and **TRANSMIT** is pressed, the numbers are converted into the actual programming.

Preparations

- Insert a video cassette with an intact erasure prevention tab.
- Confirm that the TV is on and the VCR viewing channel is selected.
- Ensure that the **VCR/TV** switch is set to **VCR**.

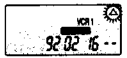


Set **VCR/TV** switch to **VCR** for using the **numeric buttons.**

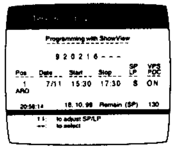
Operations **Display Symbols**

1 Press **SHOWVIEW**.

2 Enter a ShowView number.
Example: 920216



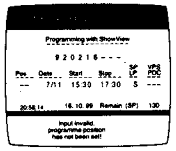
3 Press **TRANSMIT**. **On Screen Display**



```
Programming with ShowView

        9 2 0 2 1 6 - - -
                                SP   VPS
Pos   Date   Start   Stop      LP   PDC
 1    7/11   15:30   17:30      S    ON
ARD

20:58:14      18. 10. 98  Remain (SP)  130

↑↓:  to adjust SP/LP
←→:  to select
```

- To extend the ending time or to make any corrections, use buttons ▲ ▼ ◀ ▶ or **PDC/VPS.**
- See page 35 for PDC/VPS recording.

If the **"– –" appears in the programme position:**
Select the programme position of your VCR which receives the TV station you entered at step **2** using button ▲ or ▼.



```
Programming with ShowView

        9 2 0 2 1 6 - - -
                                SP   VPS
Pos   Date   Start   Stop      LP   PDC
--    7/11   15:30   17:30      S    ---

20:58:14      18. 10. 99  Remain (SP)  130

        Input invalid,
      programme position
       has not been set!
```

- After several seconds have elapsed, the message display at the bottom of the OSD is replaced by the operation guide display.
- Next time ShowView code for this stations is entered, the correct position will appear.

When satellite broadcasts have been programmed:
Only when first time use ShowView code for Satellite channels, "– –" appears on the programme position item.
In this case, press the **numeric buttons** to input the satellite channel.
Press the **SHOWVIEW** button to release the ShowView mode.

SAT 9: ⓪ (SAT) → ⓪ (SAT) → ⑨
SAT 19: ⓪ (SAT) → ① → ⑨

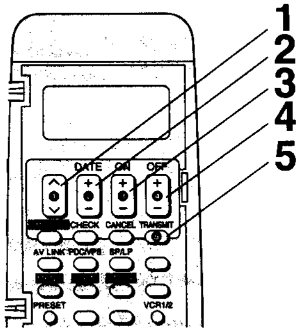
- Next time ShowView code for this station is entered, the correct position will appear.

4 Press **STORE** to confirm.

- The VCR will be in the timer recording standby mode after about 20 seconds, if **STORE** is not pressed.

Notes:
- To select the desired tape speed, press **SP/LP** button in step **2**.
- To release from the standby mode, press **TIMER REC**.
- When the ShowView number is used for programming, the recording time may be slightly longer than the actual programme time.
- When programming two or more programmes, repeat steps **1–4**.
- The procedures for checking and cancelling a timer programme are the same as on page 34.

Using the Remote Controller


1
2
3
4
5
DATE
ON
OFF
CHECK
CANCEL
TRANSMIT
AV LINK
PDC/VPS
SP/LP
PRESET
VCR1/2

For Example:

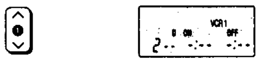
Programme position (channel);	2
Date;	27th, October
Starting time;	20:00
Ending time;	21:30

Preparation

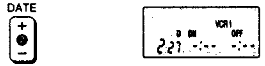
- Insert a video cassette with an intact erasure prevention tab.
- Open the door of the remote controller.

Operations **Display Symbols**

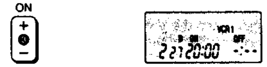
1 Set Programme position (channel) "2".


VCR1
ON
OFF
2-- -:-- -:--

2 Set Date "27".

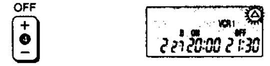

DATE
VCR1
ON
OFF
2 27 -:-- -:--

3 Set Starting time "20:00".

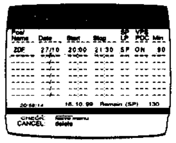

ON
VCR1
ON
OFF
2 27 20:00 -:--

- When it is kept pressed, the indication changes in 30-minute steps.

4 Set Ending time "21:30".


OFF
VCR1
ON
OFF
2 27 20:00 21:30

5 Press **TRANSMIT**. **On Screen Display**



Pos/ Name	Date	Start	Stop	SP LP	VPS PDC	Min
ZDF	27/10	20:00	21:30	SP	ON	90

20:58:14 16. 10. 99 Remain (SP) 130

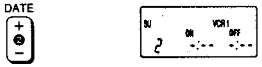
CHECK: [illegible] menu
CANCEL: delete

- The VCR will be in the timer recording standby mode after about 20 seconds.
- To release from the standby mode, press **TIMER REC**.

- See page 35 for PDC/VPS recording.
- To make a change to what has been programmed (for instance, to change **VPS/PDC** to **ON** or **OFF**), follow the procedure for On Screen Display Programming. (See page 33.)

Weekly Timer Recording

In step **2**, select the desired day by pressing **DATE –**.
For example, SU (Sunday)


DATE
SU
VCR1
ON
OFF
2 -:-- -:--

(SU=Sunday, MO=Monday, TU=Tuesday, WE=Wednesday, TH=Thursday, FR=Friday, SA=Saturday)

Daily Timer Recording

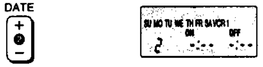
For this timer function, several groups of days can be selected.

Ⓐ Daily recording from Monday to Friday

Ⓑ Daily recording from Monday to Saturday

Ⓒ Daily recording from Sunday to Saturday

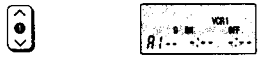
In step **2**, select the desired days by pressing **DATE –**.
For Example, Ⓒ


DATE
SU MO TU WE TH FR SA VCR1
ON
OFF
2 -:-- -:--

Timer Recording from External Signal Source

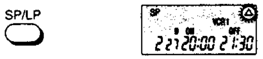
If Timer Recording is performed by a unit connected to the AV1 (TV), AV2 (DECODER/EXT) Socket or AV3 (Audio/Video/S-Video input sockets), select the A1, A2 or A3 indicator for the programme position.

A1: Through the AV1 (TV) socket.
A2: Through the AV2 (DECODER/EXT) socket.
A3: Through the AV3 (AUDIO IN/VIDEO IN/S-VIDEO IN) sockets.


VCR1
ON
OFF
A1-- -:-- -:--

Selecting the Desired Tape Speed

Press **SP/LP** in any of steps **2–4**.


SP/LP
SP
VCR1
ON
OFF
2 27 20:00 21:30

Checking and Cancelling a Timer Programme

The procedures for checking and cancelling a timer programme are the same as on page 34.

Note:
Timer recording of satellite broadcasts cannot be performed using ∨ ∧, **DATE**, **ON**, **OFF**, and **TRANSMIT** on the remote controller.

Using On Screen Display

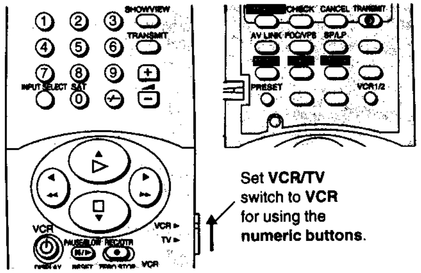
Up to 8 timer programmes can be recorded up to one month in advance by setting the timer, including weekly and daily programmes.

Preparations

- Insert a video cassette with an intact erasure prevention tab.
- Confirm that the TV is on and the VCR viewing channel is selected.

For Example:

Programme position (channel);	2
Date;	27th, October
Starting time;	20:02
Ending time;	21:30
(Present date; 16th, October)	

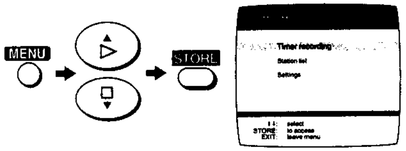

SHOWVIEW
TRANSMIT
INPUT SELECT
SAT
CHECK
CANCEL
TRANSMIT
AV LINK
PDC/VPS
SP/LP
PRESET
VCR1/2
VCR
TV
PAUSE/SLOW
RECORD

Set **VCR/TV** switch to **VCR** for using the **numeric buttons**.

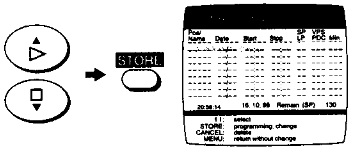
Follow the operation guide on screen display.

Operations

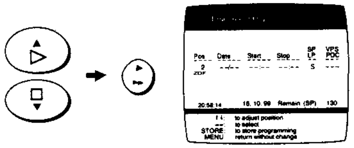
1 Press **MENU**, and then select **Timer recording**. **On Screen Display**


MENU
STORE
Timer recording
Station list
Settings

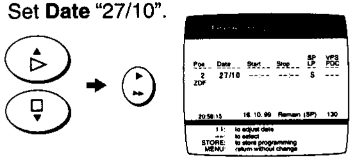
2 Select the unoccupied position.



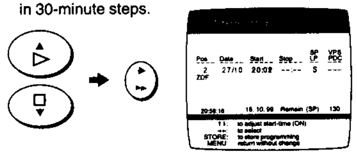
3 Set **Programme position** (channel) "2".
- Press ◄ to return to the previous item.



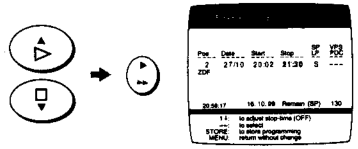
4 Set **Date** "27/10".



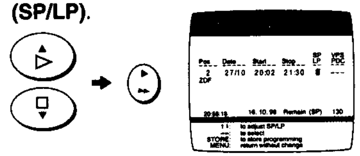
5 Set **Starting time** "20:02".
- When it is kept pressed, the indication changes in 30-minute steps.



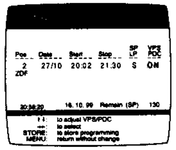
6 Set **Ending time** "21:30".



7 Select the desired **Tape speed (SP/LP)**.



8 Select **VPS/PDC ON** or **OFF (---)**.
- See page 35 for PDC/VPS recording.
- During satellite channel programmed recording, **VPS/PDC ON** cannot be selected.



9 Press **STORE**.

10 To activate timer recording, press **TIMER REC**.

Weekly Timer Recording

In step **4**, select the desired day by pressing ▼.

Daily Timer Recording

For this timer function, several groups of days can be selected.

Ⓐ Daily recording from Monday to Friday

Ⓑ Daily recording from Monday to Saturday

Ⓒ Daily recording from Sunday to Saturday

In step **4**, select the desired days by pressing ▼.

Timer Recording from External Signal Source

If Timer Recording is performed by a unit connected to the AV1 (TV), AV2 (DECODER/EXT) socket or AV3 (Audio/Video/S-Video input sockets), select the A1, A2 or A3 indicator for the programme position.

A1: Through the AV1 (TV) socket.
A2: Through the AV2 (DECODER/EXT) socket.
A3: Through the AV3 (AUDIO IN/VIDEO IN/S-VIDEO IN) sockets.

Setting other Programmes in Succession

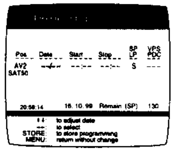
Repeat steps **2**–**9**.

Satellite Channel Programmed Recording

When selecting the programme position (channel), use the numeric buttons to select a satellite channel.

- Ensure that the **VCR/TV** switch is set to **VCR**.

SAT 9: ⓪ – ⓪ – ⑨ (SAT, SAT)
SAT 19: ⓪ – ① – ⑨ (SAT)



- PDC/VPS programming is not possible in conjunction with satellite programmed recording.
- In the case of some satellite receivers, the power remains off for several seconds when timer recording commences.
- With some satellite receivers, the first several seconds will not be recorded when the timer recording function is used.
- With some satellite receivers, the power goes off if the recording is stopped while timer recording is still underway.

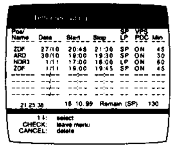
Checking a Timer Programme

- The VCR must be turned on, or the timer recording indicator "⊡" is lit.
- Confirm that the TV is on and the VCR viewing channel is selected.

On Screen Display

Press **CHECK**.

- On Screen Display may be distorted in the PDC/VPS recording standby mode.



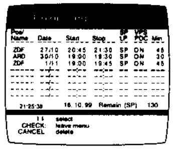
Cancelling a Timer Programme

- The VCR must be turned on or in timer recording standby mode.
- Confirm that the TV is on and the VCR viewing channel is selected.

1 Press **CHECK**.

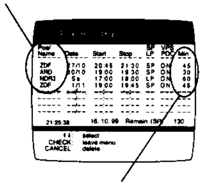
2 Select the desired timer programme.

3 Press **CANCEL**.



Notes:

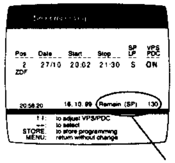
- If a timer recording is not completed to the end (due to insufficient tape or cancellation by the user), the programmed timer recording data will be cancelled from the memory by 4 a.m. the next day. However, if the Timer Record Function is activated at that time, the programmed timer recording data will be cancelled at 4 a.m. the next day.
- Either the Position number or the Station name is displayed here.



- For daily and weekly timer recording, the recording time for only one recording session is displayed.

Checking the remaining tape time

This displays the remaining time for the inserted tape.



Remain time indicator

- This indicator is not displayed unless the remaining tape time has already been indicated on the VCR display. Refer to page 29.

PDC (Programme Delivery Control)/VPS (Video Programme System)

The Programme Delivery Control (PDC) or the Video Programme System (VPS) is a very convenient system which assures that the TV programmes you have programmed for timer recording will be recorded exactly from beginning to end, even if the actual broadcasting time differs from the scheduled time due to delayed start or extension of the programme duration. Also, if a programme is interrupted and, for example, some special news are inserted, the recording will also be interrupted automatically and resumed when the programme continues.

Depending on the signals sent from the broadcasting stations, the PDC/VPS system may not operate properly even when **VPS/PDC** has been set to **ON**. Please check with the broadcasters in your area for details.

- In the case of PDC/VPS recording, use the **correct** time (PDC/VPS time) for recording the TV programmes. Set **VPS/PDC** to **OFF** when the recording time is not the correct time (PDC/VPS time). PDC/VPS recording is not performed when the time (PDC/VPS time) is incorrect, even if only by one minute. To find out the correct time (PDC/VPS time), consult Teletext, a newspaper or magazine, etc.
- If the actual broadcasting times of timer recordings overlap (regardless of whether they are PDC/VPS controlled), the recording that starts first has always priority, and the recording of the later beginning programme will start only after the first timer recording has finished.
- When the PDC/VPS signal drops out because the broadcast signal is weak, or when a broadcasting station does not transmit a regular PDC/VPS signal, the timer recording will be performed in the normal mode (without PDC/VPS) even if it was programmed for PDC/VPS. In this case, even if the timer recording is performed, whatever has been programmed will not be cancelled at that particular time but at 4 a.m. on the following day.
- The start times of scheduled programmes listed in the newspaper or magazine may be changed at a later date. Set **VPS/PDC** to **OFF** when programming a programme whose start time has been subsequently changed. Particular care must be taken in this respect with ShowView programming since **VPS/PDC** is automatically set to **ON** in some countries.
- If a programme listed in a newspaper or magazine has two ShowView numbers, use the ShowView number for VPS/PDC if you wish to proceed with VPS/PDC recording using ShowView programming.
- The default settings for **VPS/PDC** differ depending on the country concerned. Refer to the table shown below.

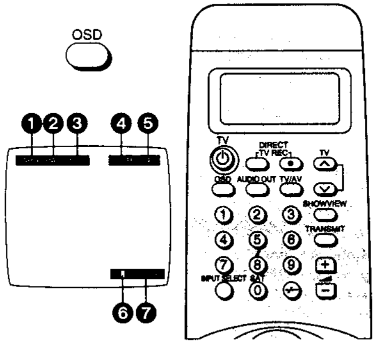
Programming method / Selected Country	ShowView programming	Changes in the ShowView programming start time	Non-ShowView programming
France, Belgium, Netherlands, Sweden, Denmark, Finland, Norway	ON	OFF	OFF
Germany, Switzerland, Austria, Other Countries	ON	ON	ON
Italy, Spain, Portugal	OFF	OFF	OFF

After auto tuning "– – –" appears for the **VPS/PDC** item at the outset in the case of a broadcasting station which is not transmitting VPS/PDC signals.

Other Functions

On Screen Display

Press **OSD** to make the On Screen Display appear on the TV screen.



❶ **TV station**

❷ **TV system**

❸ **Stereo or Bilingual Indicator (NV-HS950EG)**
When receiving a TV programme, the type of sound system in which it is broadcast is automatically indicated.

Stereo, M1 and M2 Indicator (NV-HS950EC)
When receiving a TV programme with the Stereo, Bilingual or NICAM sound system, the type of sound system in which it is broadcast is automatically indicated.

Stereo:	When receiving a Stereo/NICAM stereo broadcast.
M1 M2:	When receiving a Bilingual/NICAM dual-sound broadcast.
M1:	When receiving a NICAM monaural broadcast.

❹ **Audio Output Mode Indicators**
The Left (L) and Right (R) Indicators show which sound mode is selected with **AUDIO OUT**.

Stereo:	Both the L and R Indicators appear.
Left:	The L Indicator appears.
Right:	The R Indicator appears.
Normal:	Both the L and R Indicators don't appear.

❺ **Tape speed indicator**

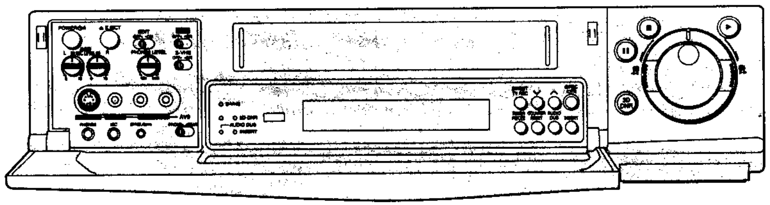
❻ **Tape running display**

Stop, Eject	▮
Rewind	◀◀
Fast Forward	▶▶
Playback	▶
Recording	●
Repeat Playback	R

❼ **Present time/Tape counter/Remaining tap time/ Index Search/One-Touch Recording (OTR)**

Information	Display
Present time	17:24:31
Tape counter	−2:35.47
Remaining tape time	REMAIN 2:34
Index Search	▶▶ 02
One-Touch Recording (OTR)	OTR 60

Notes:
- When the item **"On screen display"** is set to OFF (See page 47.), the On Screen Display will not appear.
- When the programme position AV is selected or during playback, the On Screen Display (❶, ❷, ❸) will not appear.
- The On Screen Display does not appear during special playback.

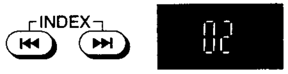


VHS Index Search System

It is very easy to find the beginning of each recording, because a special index signal is recorded at the start of each recorded segment on the tape.

For example:
Searching for the 2nd recorded segment in the forward direction.

Press **INDEX ▶▶|** twice.
(This operation is performed while the VCR is in the stop mode or normal playback mode.)



- After finding the specific recorded segment, playback starts automatically.
- For the reverse direction, press **INDEX |◀◀**.
- Up to 20 index signals can be searched for in both directions.
- When the opposite **INDEX** button is pressed, the number shall be decreased till 1.
- The figure on the display is decremented by 1 each time an index signal is located.
- The INDEX search function can only work correctly, if the index signals are spaced at least 3 minutes apart in the SP mode and 5 minutes apart in the LP mode.

Recording Index Signals
Index signals are recorded in following cases.
- When a recording is started by pressing **REC/OTR**.
- When timer recording is activated.

NTSC Playback

Tapes recorded in the NTSC system can be played back with this VCR via a PAL system TV set.
- The playback picture may roll up or down. If the TV set is equipped with a V-HOLD control, it may be possible to stop the picture movement by adjusting this control.
- Depending on the TV set used, the picture may be in black and white. However, this is not an indication of a malfunction.
- The TBC function will not work.

Other Automatic Functions

Automatic Playback

When a cassette without an erasure prevention tab is inserted, the VCR starts playback automatically.

VCR-off Playback

When the VCR is off, an inserted cassette can be played back by pressing ▷ **(PLAY)**.

Automatic Rewinding

When the tape reaches its end during recording (except for timer recording) or playback, it will automatically be rewound to the beginning.
- During OTR, this function will not work.

Automatic Switching Off and Ejection

When the VCR is switched off, and inserted cassette can be ejected simply by pressing **EJECT**. The VCR will eject the cassette and automatically turn itself off again.

Editing

Assembly Editing

This function can be used to make up an edited tape from other recordings or video sources.

A new scene can be added to the end of a previous one.

Preparations

- Connect a Movie Camera or another VCR to this VCR as shown.
- Insert a recorded cassette tape with an intact erasure prevention tab.
- Select the video source required by pressing **INPUT SELECT** to set A1, A2 or A3.
  A1: Through the AV1 (TV) socket.
  A2: Through the AV2 (DECODER/EXT) socket.
  A3: Through the AV3 (AUDIO IN/VIDEO IN/S-VIDEO IN) sockets.

Operations

1 Press **II (PAUSE/STILL)** on the recording VCR.

2 Search for the end of the previous recording.

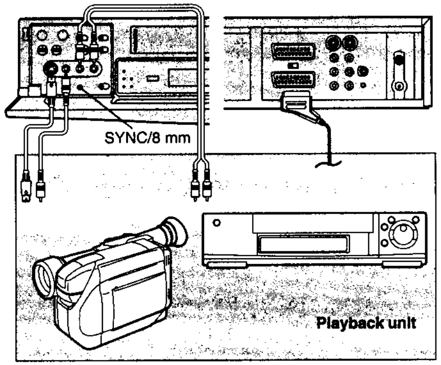
3 Press **REC/OTR** to switch the VCR from the pause mode to the recording standby mode.

4 Start the new recording by pressing **II (PAUSE/STILL)** again.

5 Press **■ (STOP)** to stop recording.

Note:
The new sound will be recorded on both the normal and Hi-Fi sound tracks, only monaural sound recording is possible on the normal sound tracks.

Recording VCR



Synchronized Editing

It is possible to synchronize the playback start and stop of the Movie Camera with the recording start and stop of this VCR.

Preparations

- Connect a Movie Camera to this VCR with Synchro Connection Cord (VW-K1E).
- Turn **One-Touch-Edit** to **OFF** before connecting the Synchro Connection Cord. (See page 49.)

1 Put the VCR in the recording pause mode by pressing **REC/OTR** and **II (PAUSE/STILL)**.

2 Put the Movie Camera in the still playback mode at the point where you want to start editing.

3 Press **II (PAUSE/STILL)** on the VCR.
- The Movie Camera changes over to the playback mode and the dubbing will start automatically.

Synchronized Editing between the VCRs
When editing from another VCR equipped with the synchronized editing function, synchronized start and stop of both VCRs can be activated from this VCR.

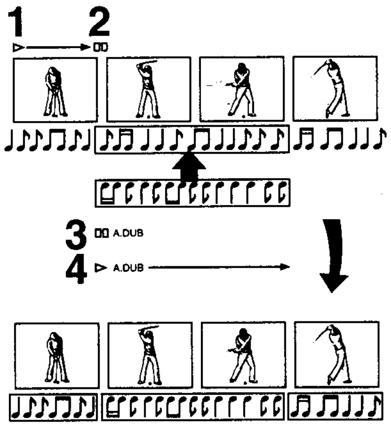
The operation is the same as described for synchronized editing from a Movie Camera.

Audio Dubbing

The audio dubbing is made on the normal audio track and erases the original sound on this track. On Hi-Fi audio tracks, however, the original sound is maintained.

Preparations

- Insert a recorded cassette with an intact erasure prevention tab.
- Select the video source required by pressing **INPUT SELECT** to set A1, A2 or A3.
  A1: Through the AV1 (TV) socket.
  A2: Through the AV2 (DECODER/EXT) socket.
  A3: Through the AV3 (AUDIO IN) sockets.



Operations	Display Symbols	
1	▷	Search for the starting point for audio dubbing.
2	‖	Press **II (PAUSE/STILL)** at the starting point.
3		Set for audio dubbing by pressing **AUDIO DUB**. •On some televisions, the screen image may become unstable or begin to scroll at this point. However, this is not an indication of a malfunction. •The **AUDIO DUB** indicator will light.
4	▷	Start recording the new sound by pressing **II (PAUSE/STILL)**. •Stop recording by pressing **STOP**.

Note:
The new sound will be recorded on the normal sound track of the tape, and the original sound will remain on the Hi-Fi sound track. Only monaural sound recording is possible on the normal sound track.

To hear the new sound, select the normal sound track by pressing **AUDIO OUT**.
To hear the new sound and original sound mixed together, set **Audio System** to **HIFI-MIX**. (See page 48.)

Audio dubbing with Panasonic Hi-Fi VCR

General

a) Due to VHS format reasons, audio dubbing can be performed only on the normal audio track.
b) The Hi-Fi audio tracks cannot be influenced without erasing the video signal.
c) The audio dubbing function is provided with an automatic recording function. The volume level cannot be adjusted. When dubbing to the Hi-Fi VCR, the volume level must be considered in advance.
d) There are three types of audio dubbing (A–C):

A. Audio dubbing on the normal audio track

1. Select the desired AV input.
1.2. The microphone input may also be selected. In this case, the microphone signal has priority.
Disconnect the microphone when other audio signals are to be used.
2. Locate the recording starting point and press **PLAY-PAUSE**.
3. Press **AUDIO OUT** three times to select the normal audio track.
4. Press **AUDIO DUB**.
5. Start audio dubbing by releasing the pause function.
6. After audio dubbing has been completed, rewind the tape and make sure that the normal audio track is selected. (Step **3**)
7. Check the audio dubbing.

B. Audio dubbing on the normal audio track with Hi-Fi Mix function

1. Select the desired AV input.
2. Locate the recording starting point and press **PLAY-PAUSE**.
3. The Hi-Fi tracks should be set to playback.
  - When a videocassette is inserted, the Hi-Fi tracks are automatically set to playback.
  - Hi-Fi tracks must be recorded. Copy the audio signal, if necessary.

4. Press **AUDIO DUB**.
5. Start audio dubbing by releasing the pause function.
6. After audio dubbing has been completed, rewind the tape and set **Audio System** to **HIFI-MIX**. (See page 48.)
7. Check the audio dubbing.
The original sound and the new sound are heard simultaneously.

C. Audio dubbing on the normal audio track with original sound and new sound

1. Select the desired AV input.
2. Locate the recording starting point and press **PLAY-PAUSE**.
3. The Hi-Fi tracks should be set to playback.
  - When a videocassette is inserted, the Hi-Fi tracks are automatically set to playback.
  - Hi-Fi tracks must be recorded. Copy the audio signal, if necessary.

4. Press **AUDIO DUB**.
  - Input the original signals of the Hi-Fi tracks (Audio-Out) to a mixing console (optional) and mix with the new sound as required.

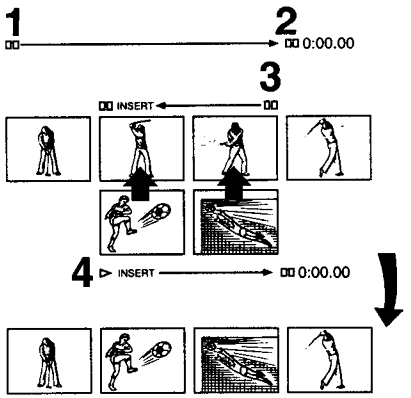
5. Start audio dubbing by releasing the pause function.
6. After audio dubbing has been completed, rewind the tape and make sure that the normal audio track is selected. (Step **3**)
7. Check the audio dubbing.

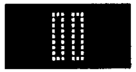
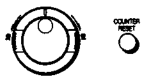
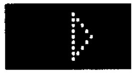
Insert Editing

This is used to substitute one scene for another providing.

Preparations

- Insert a recorded cassette with an intact erasure prevention tab.
- Select the video source required by pressing **INPUT SELECT** to set A1, A2 or A3.
  A1: Through the AV1 (TV) socket.
  A2: Through the AV2 (DECODER/EXT) socket.
  A3: Through the AV3 (AUDIO IN/VIDEO IN/S-VIDEO IN) sockets.



Operations		Display Symbols	
1			Press **II (PAUSE/STILL)** on the recording VCR.
2			Search for the Edit out (ending) point, and set the counter to 0:00.00 by pressing **COUNTER RESET**.
3			Search for the Edit in (starting) point, and press **INSERT**. • The **INSERT** indicator will light. • If you want to replace the sound on the "normal" audio track, press **AUDIO DUB**, too. (AV Insert Editing) Both the **INSERT** and the **AUDIO DUB** indicators will light.
4			Start insert editing by pressing **II (PAUSE/ STILL)**. • The insert editing will finish when the counter reaches 0:00.00.

Note:
Insert Editing cannot be used on blank sections of a tape.
In this case use Assembly Editing first.

The new sound will be recorded on the Hi-Fi sound track.
If AUDIO DUB selected, the new sound will also be recorded on the normal sound track.

Only monaural sound recording is possible on the normal sound tracks.

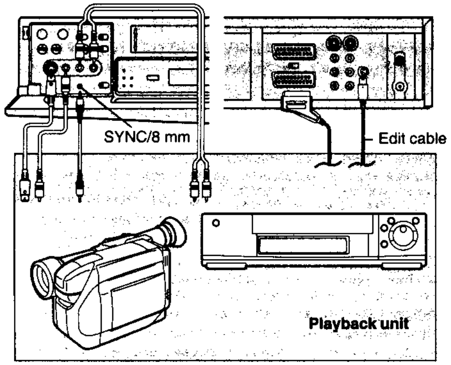
One-Touch-Editing

With this editing, it is easy to perform repeated assemble editing, insert editing or audio dubbing operations.

Preparations

- Before proceeding with the connections, check that the AC mains lead of both VCRs have been connected.
- Before the VCR is connected to a movie camera or another VCR, select **One-Touch-Edit** to **ON**. (See page 49.) The playback VCR display or movie camera viewfinder image may be abnormal if the edit cable is connected with **One-Touch-Edit** left **OFF**.
- Connect a movie camera or another VCR to this VCR as shown.
- Use the **SYNC/8 mm** socket when connecting this unit to a VCR or movie camera equipped with a LANC socket.
- Insert a recorded cassette tape with an intact erasure prevention tab.
- Select the video source required by pressing **INPUT SELECT** to set A1, A2 or A3.
  A1: Through the AV1 (TV) socket.
  A2: Through the AV2 (DECODER/EXT) socket.
  A3: Through the AV3 (AUDIO IN/VIDEO IN/S-VIDEO IN) sockets.
- Upon completion of the One-Touch-Editing, disconnect the edit cable.

Recording VCR



Operations

1 Press **II (PAUSE/STILL)** on the recording VCR.

2 Search for the end of the previous recording.

3 Press **REC/OTR** to switch the VCR from the pause mode to the recording standby mode.

- The playback VCR will be in still mode.
- If **INSERT** or **AUDIO DUB** is pressed instead of **REC/OTR**, Insert Editing or Audio Dubbing can be performed.

4 Search for the Edit in (starting) point on the playback VCR.

5 Start One-Touch-Editing by pressing **II (PAUSE/STILL)** again.

6 Press **II (PAUSE/STILL)** at the Edit out (ending) point on the playback VCR.

- For Editing in succession, repeat **4** to **6**.

7 Press ■ **(STOP)** to stop editing.

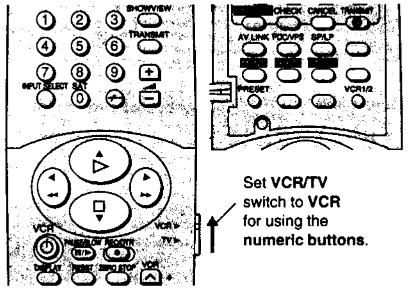
Storing TV Broadcasts into your VCR

Introduction

The VCR is fitted with its own tuner (just like a normal TV set) and can be pre-set to receive up to 99 TV broadcast stations.
If VCR is not correctly tuned by Auto setup, follow the procedure bellow.

Preparations

- Confirm that the TV is on and the VCR viewing channel is selected.
- Turn on the VCR.



Set **VCR/TV** switch to **VCR** for using the **numeric buttons.**

Manual Tuning Procedure

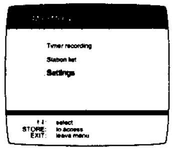
Follow the operation guide on screen display.

Operations

1 Press **MENU**.

2 Select **Settings**.

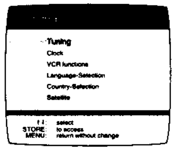
On Screen Display



Timer recording
Station list
Settings

↑↓: select
STORE: to access
EXIT: leave menu

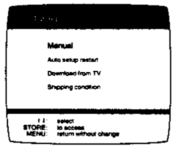
3 Select **Tuning**.



Tuning
Clock
VCR functions
Language-Selection
Country-Selection
Satellite

↑↓: select
STORE: to access
MENU: return without change

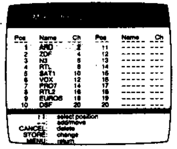
4 Select **Manual**.



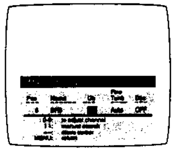
Manual
Auto setup restart
Download from TV
Shipping condition

↑↓: select
STORE: to access
MENU: return without change

5 Select desired **Programme position**.



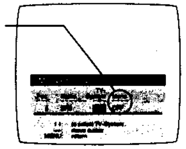
6 Select **Channel (Ch)**.
- Ensure that the **VCR/TV** switch is set to **VCR**.



7 Select **Dec ON** or **Dec OFF**.
ON: To preset pay TV stations.
OFF: To preset normal TV stations.

8 Use ◀ ▶ to display the next screen.
Select **TV-System**.
PAL: For receiving PAL signal.
MESECAM: For receiving SECAM signal.

NV-HS950EC only



9 **NV-HS950EC only**
Select **Mono OFF**.
- Select **Mono ON** to record the normal sound during a stereo, bilingual or NICAM broadcast or if the stereo sound is distorted due to inferior reception conditions.

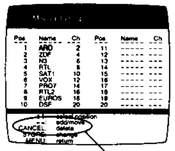
10 Press **MENU**, and then press **EXIT**.

Notes:

- When channels have been set with manual tuning, the channel position **(Ch)** will need to be entered in the highlighted box the first time ShowView is used.
- When **Preset Download (Download from TV)** has been executed, do not perform Manual Tuning. This is because when the tuning contents for the TV are changed, this information is downloaded to the VCR again, thereby erasing the independent contents input by Manual Tuning.

When changing (moving) the programme position, adding “Blank” positions and deleting stations;

These operations can be perfomed easily by following the indications of the On Screen Display.


Pos
Name
Ch
ARD
ZDF
N3
RTL
SAT1
VOX
PRO7
RTL2
EURO5
DSF
select position
add/move
CANCEL: delete
STORE: change
MENU: return

Indications

Press ▲ or ▼ to select the desired programme position (station), and then follow the steps indicated below.

←: Press ◀ to add “Blank” position.

→: Press ▶ to change (move) the programme position.

CANCEL: Press **CANCEL** to delete the stations.

- These indications do not appear after performing **Preset Download (Download from TV)**.

To change the TV station name:

After Step **5** but before Step **8**, select the TV station name **(Name)** item using ◀ ▶, and then make the desired change. (See page 22.)

- No changes can be made to the TV station name while **“SAT   ”** is displayed when **Satellite Connection** is set to **RF**. (See page 24.)

Channel Plan

Channel Indication	TV Channel	
	Germany/Italy	Other Countries
2–12	*E2–E12	E2–E12
13–20	A–H (Only Italy)	——
21–69	21–69	21–69
74–78	S01–S05	S1–S5
80–82	S1–S3	M1–M3
83–89	S4–S10	M4–M10
90–99	S11–S20	U1–U10
121–141 Hyperband	**S21–S41	S21–S41

*In Italy: H1...(11), H2...(12)

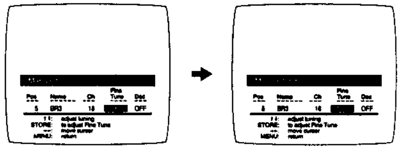
**Only for 8 MHz channel raster

Fine Tuning Procedure

Follow steps **1** to **5** on page 43.

6 Select **Fine Tune**.

7 Press ▲ or ▼ to obtain the best tuning condition.
- To return the tuning to its former state, press **STORE**.


Pos
Name
Ch
Fine Tune
Dec
5
BR3
16
OFF
↑↓: adjust tuning
STORE: to adjust Fine Tune
←→: move cursor
MENU: return

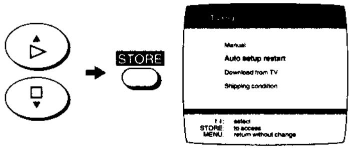
8 Press **MENU**, and then press **EXIT**.

Auto Setup Restart

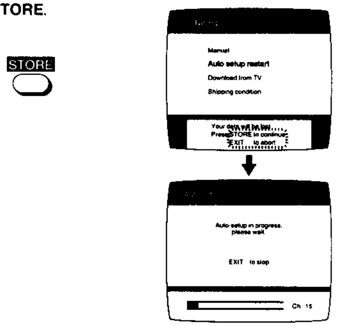
When your address changes, follow the procedure below.
Follow the steps **1** to **3** on page 43.

4 Select **Auto setup restart**.

On Screen Display


STORE
Manual
Auto setup restart
Download from TV
Shipping condition
↑↓: select
STORE: to access
MENU: return without change

5 Press **STORE**.


STORE
Manual
Auto setup restart
Download from TV
Shipping condition
Ch 15

Your data will be lost.
Press STORE to continue
EXIT to abort

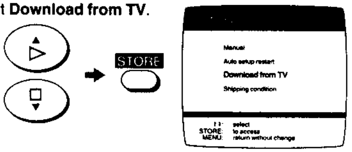
Auto-setup in progress.
please wait.

EXIT to stop

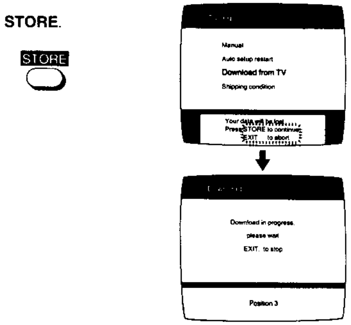
Download from TV

To perform the downloading again, follow the procedure below in the stop mode.
Follow steps **1** to **3** on page 43.

4 Select **Download from TV**.


STORE
Manual
Auto setup restart
Download from TV
Shipping condition
↑↓: select
STORE: to access
MENU: return without change

5 Press **STORE**.


STORE
Manual
Auto setup restart
Download from TV
Shipping condition
Position 3

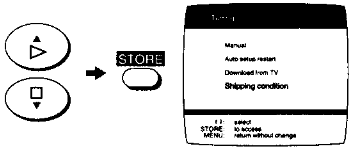
Your data will be lost.
Press STORE to continue
EXIT to abort

Download in progress.
please wait
EXIT. to stop

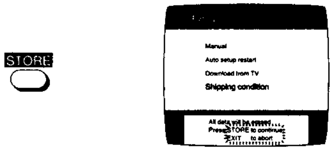
Shipping Condition

If you want to return the VCR to the factory-preset condition, follow the procedure below.
Follow the steps **1** to **3** on page 43.

4 Select **Shipping condition**.

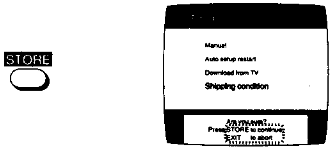

STORE
Manual
Auto setup restart
Download from TV
Shipping condition
↑↓: select
STORE: to access
MENU: return without change

5 Press **STORE**.


STORE
Manual
Auto setup restart
Download from TV
Shipping condition

All data will be erased.
Press STORE to continue
EXIT to abort

6 Press **STORE** again.


STORE
Manual
Auto setup restart
Download from TV
Shipping condition

Are you sure?
Press STORE to continue
EXIT to abort

Note:
To re-tune the VCR, disconnect and then reconnect the mains lead. If the VCR is off, turn on the VCR and then repeat the procedures on pages 18 to 22.

Setting the Clock of your VCR

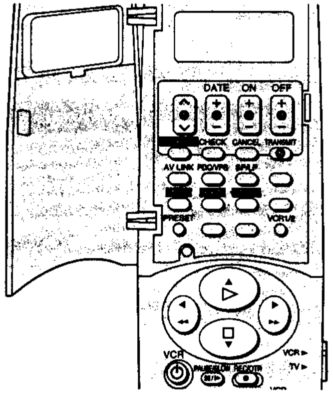
The built-in clock is used to activate the timer for automatic recording and must be set to the correct time.

The built-in digital clock employs the 24-hour system.

If VCR is not correctly set by Auto setup, follow the procedure below.

Preparations

- Confirm that the TV is on and the VCR viewing channel is selected.
- Turn on the VCR.

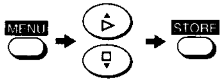


Manual Clock Setting

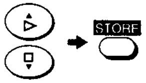
Follow the operation guide on screen display.

Operations

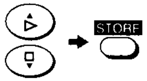
1 Press **MENU**, and then select **Settings.**



2 Select **Clock**.

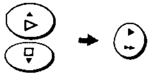


3 Select **Manual setting**.

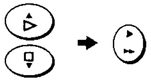


4 Set **Time (H/M)**.

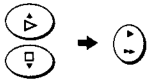
- When it is kept pressed, the indication changes in 30-minute steps.
- Press ◀ to return to the previous item.



5 Set **Date (D)**.

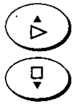


6 Set **Month (M)**.

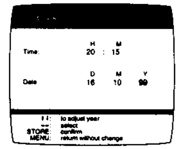


7 Set **Year (Y)**.

- There is no need to press ▶.



On Screen Display



```
                H    M
Time:          20 : 15

                D    M    Y
Date           16   10   99

      ↑↓:  to adjust year
      ←→:  select
   STORE:  confirm
    MENU:  return without change
```

8 Press **STORE**.

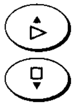
- The clock will start.

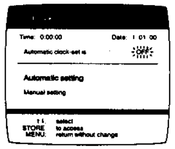
9 Press **EXIT**.

Automatic Clock Setting

Follow steps **1** to **2** of the above procedure.

3 Select **Automatic setting**.





```
Time:  0:00:00                Date:  1 01 00
 Automatic clock-set is               OFF
 ____________________________________________
 Automatic setting

 Manual setting

      ↑↓:  select
   STORE:  to access
    MENU:  return without change
```

4 Press **STORE**.

- The clock is set automatically.

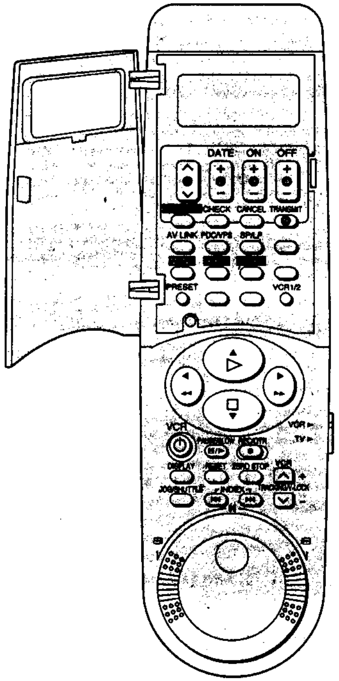
Notes:

- The clock operates for at least 60 minutes by its backup system in the event of power failure.
- When the item **"Automatic clock-set is"** is ON on screen display, Automatic time correcting function is activated every day. The Automatic time correcting function is only activated when the power is off. This function is not activated during timer recording standby mode.

Settings Using On Screen Display

Preparations

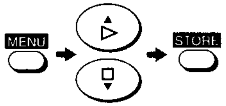
- Confirm that the TV is on and the VCR viewing channel is selected.
- Turn on the VCR.



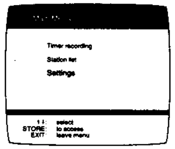
VCR functions

On Screen Display

1 Press **MENU**, and then select **Settings**.

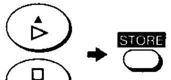


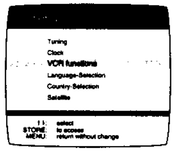
On Screen Display



```
        Timer recording
        Station list
        Settings

      ↑↓:  select
   STORE:  to access
    EXIT:  leave menu
```

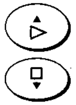
2 Select **VCR functions**.

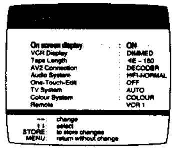




```
        Tuning
        Clock
        VCR functions
        Language-Selection
        Country-Selection
        Satellite

      ↑↓:  select
   STORE:  to access
    MENU:  return without change
```

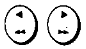
3 Select **On screen display**.

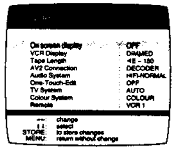




```
  On screen display     :  ON
  VCR Display           :  DIMMED
  Tape Length           :  4E - 180
  AV2 Connection        :  DECODER
  Audio System          :  HIFI-NORMAL
  One-Touch-Edit        :  OFF
  TV System             :  AUTO
  Colour System         :  COLOUR
  Remote                   VCR 1

      ←→:  change
      ↑↓:  select
   STORE:  to store changes
    MENU:  return without change
```

4 Select **ON** or **OFF**.

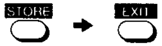




```
  On screen display     :  OFF
  VCR Display           :  DIMMED
  Tape Length           :  4E - 180
  AV2 Connection        :  DECODER
  Audio System          :  HIFI-NORMAL
  One-Touch-Edit        :  OFF
  TV System             :  AUTO
  Colour System         :  COLOUR
  Remote                :  VCR 1

      ←→:  change
      ↑↓:  select
   STORE:  to store changes
    MENU:  return without change
```

ON: The On Screen Display will appear on the TV screen by pressing **OSD**.
OFF: The On Screen Display will not appear even if **OSD** is pressed.

5 Press **STORE**, and then press **EXIT** to make On Screen Display disappear.

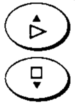


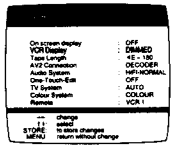
VCR Display

On Screen Display

Follow steps **1** and **2** on page 47.

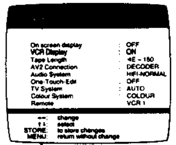
3 Select **VCR Display**.





```
On screen display   : OFF
VCR Display         : DIMMED
Tape Length         : ◄E - 180
AV2 Connection      : DECODER
Audio System        : HIFI-NORMAL
One-Touch-Edit      : OFF
TV System           : AUTO
Colour System       : COLOUR
Remote              : VCR 1

   ←→: change
   ↑↓: select
STORE: to store changes
 MENU: return without change
```

4 Select **ON, OFF** or **DIMMED**.



```
On screen display   : OFF
VCR Display         : ON
Tape Length         : ◄E - 180
AV2 Connection      : DECODER
Audio System        : HIFI-NORMAL
One-Touch-Edit      : OFF
TV System           : AUTO
Colour System       : COLOUR
Remote              : VCR 1

   ←→: change
   ↑↓: select
STORE: to store changes
 MENU: return without change
```

ON: When VCR is turned off, the characters are lit in the VCR display.
OFF: When VCR is turned off, the characters are not lit in the VCR display.
DIMMED: When VCR is turned off, the characters are dimmed in the VCR display.

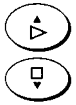
5 Press **STORE**, and then press **EXIT** to make On Screen Display disappear.

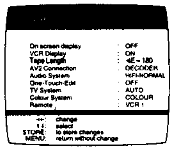
To select the Corresponding Cassette Tape Length for Displaying the Approximate Remaining Tape Time

On Screen Display

Follow steps **1** and **2** on page 47.

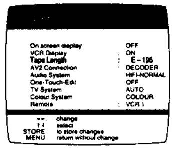
3 Select **Tape Length**.





```
On screen display   : OFF
VCR Display         : ON
Tape Length         : ◄E - 180
AV2 Connection      : DECODER
Audio System        : HIFI-NORMAL
One-Touch-Edit      : OFF
TV System           : AUTO
Colour System       : COLOUR
Remote              : VCR 1

   ←→: change
   ↑↓: select
STORE: to store changes
 MENU: return without change
```

4 Select the corresponding cassette tape length.



```
On screen display   : OFF
VCR Display         : ON
Tape Length         :  E - 195
AV2 Connection      : DECODER
Audio System        : HIFI-NORMAL
One-Touch-Edit      : OFF
TV System           : AUTO
Colour System       : COLOUR
Remote              : VCR 1

   ←→: change
   ↑↓: select
STORE: to store changes
 MENU: return without change
```

◄ E-180: For E30, -60, -90, -120 and -180 tapes.
E-195: For E195 tape.
E-240: For E240 tape.
E-260 ►: For E260 and -300 tapes.

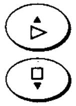
- The times displayed may differ depending on the tape used.

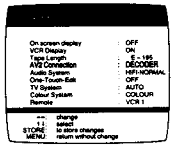
5 Press **STORE**, and then press **EXIT** to make On Screen Display disappear.

AV2 Connection

Follow steps **1** and **2** on page 47.

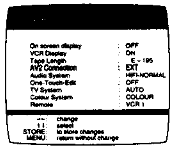
3 Select **AV2 Connection**.





```
On screen display   : OFF
VCR Display         : ON
Tape Length         :  E - 195
AV2 Connection      : DECODER
Audio System        : HIFI-NORMAL
One-Touch-Edit      : OFF
TV System           : AUTO
Colour System       : COLOUR
Remote              : VCR 1

   ←→: change
   ↑↓: select
STORE: to store changes
 MENU: return without change
```

4 Select **EXT** or **DECODER**.



```
On screen display   : OFF
VCR Display         : ON
Tape Length         :  E - 195
AV2 Connection      : EXT
Audio System        : HIFI-NORMAL
One-Touch-Edit      : OFF
TV System           : AUTO
Colour System       : COLOUR
Remote              : VCR 1

   ←→: change
   ↑↓: select
STORE: to store changes
 MENU: return without change
```

EXT: When another VCR or a satellite receiver is connected to the AV2 (DECODER/EXT) socket.
DECODER: When the decoder is connected to the AV2 (DECODER/EXT) socket.

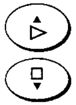
If **Satellite connection** is set to **AV2** (See page 24.), **AV2 Connection** is set to **EXT** automatically.

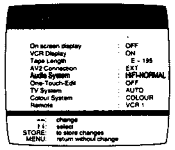
5 Press **STORE**, and then press **EXIT** to make On Screen Display disappear.

Audio System

Follow steps **1** and **2** on page 47.

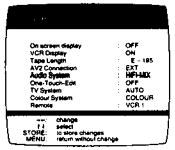
3 Select **Audio System**.





```
On screen display   : OFF
VCR Display         : ON
Tape Length         :  E - 195
AV2 Connection      : EXT
Audio System        : HIFI-NORMAL
One-Touch-Edit      : OFF
TV System           : AUTO
Colour System       : COLOUR
Remote              : VCR 1

   ←→: change
   ↑↓: select
STORE: to store changes
 MENU: return without change
```

4 Select **HIFI-NORMAL** or **HIFI-MIX**.



```
On screen display   : OFF
VCR Display         : ON
Tape Length         :  E - 195
AV2 Connection      : EXT
Audio System        : HIFI-MIX
One-Touch-Edit      : OFF
TV System           : AUTO
Colour System       : COLOUR
Remote              : VCR 1

   ←→: change
   ↑↓: select
STORE: to store changes
 MENU: return without change
```

HIFI-NORMAL: Normally set at this position to reproduce the better sound available from the Hi-Fi track.
HIFI-MIX: Both sound tracks (the Hi-Fi sound track and the normal sound track) are played back mixed together. Use this setting when playing back a cassette tape which has been insert edited or audio dubbed.

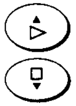
5 Press **STORE**, and then press **EXIT** to make On Screen Display disappear.

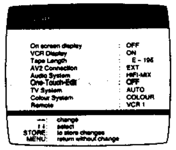
One-Touch-Edit

Follow steps **1** and **2** on page 47.

3 Select **One-Touch-Edit**.

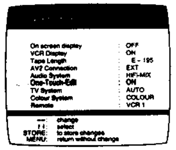
On Screen Display





```
On screen display   : OFF
VCR Display         : ON
Tape Length         :  E - 195
AV2 Connection      : EXT
Audio System        : HIFI-MIX
One-Touch-Edit      : OFF
TV System           : AUTO
Colour System       : COLOUR
Remote              : VCR 1

   ←→: change
   ↑↓: select
STORE: to store changes
 MENU: return without change
```

4 Select **ON** or **OFF**.



```
On screen display   : OFF
VCR Display         : ON
Tape Length         :  E - 195
AV2 Connection      : EXT
Audio System        : HIFI-MIX
One-Touch-Edit      : ON
TV System           : AUTO
Colour System       : COLOUR
Remote              : VCR 1

   ←→: change
   ↑↓: select
STORE: to store changes
 MENU: return without change
```

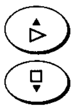
ON: For One-Touch-Editing.
OFF: For editing with editing controller or synchronized editing.

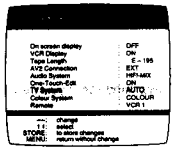
5 Press **STORE**, and then press **EXIT** to make On Screen Display disappear.

To set the Colour TV System

Follow steps **1** and **2** on page 47.

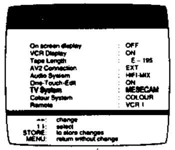
3 Select **TV System**.





```
On screen display   : OFF
VCR Display         : ON
Tape Length         :  E - 195
AV2 Connection      : EXT
Audio System        : HIFI-MIX
One-Touch-Edit      : ON
TV System           : AUTO
Colour System       : COLOUR
Remote              : VCR 1

   ←→: change
   ↑↓: select
STORE: to store changes
 MENU: return without change
```

4 Select **AUTO, PAL** or **MESECAM**.



```
On screen display   : OFF
VCR Display         : ON
Tape Length         :  E - 195
AV2 Connection      : EXT
Audio System        : HIFI-MIX
One-Touch-Edit      : ON
TV System           : MESECAM
Colour System       : COLOUR
Remote              : VCR 1

   ←→: change
   ↑↓: select
STORE: to store changes
 MENU: return without change
```

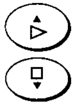
- Set according to the colour TV system used during playback or external recording.

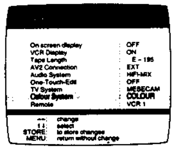
5 Press **STORE**, and then press **EXIT** to make On Screen Display disappear.

Colour System

Follow steps **1** and **2** on page 47.

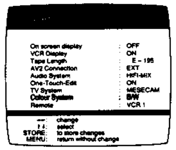
3 Select **Colour System**.





```
On screen display   : OFF
VCR Display         : ON
Tape Length         :  E - 195
AV2 Connection      : EXT
Audio System        : HIFI-MIX
One-Touch-Edit      : OFF
TV System           : MESECAM
Colour System       : COLOUR
Remote              : VCR 1

   ←→: change
   ↑↓: select
STORE: to store changes
 MENU: return without change
```

4 Select **COLOUR** or **B/W**.



```
On screen display   : OFF
VCR Display         : ON
Tape Length         :  E - 195
AV2 Connection      : EXT
Audio System        : HIFI-MIX
One-Touch-Edit      : ON
TV System           : MESECAM
Colour System       : B/W
Remote              : VCR 1

   ←→: change
   ↑↓: select
STORE: to store changes
 MENU: return without change
```

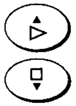
COLOUR: Normally set at this position.
B/W: When playing back a tape which was recorded on black and white.

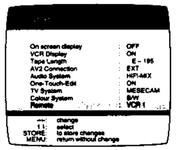
5 Press **STORE**, and then press **EXIT** to make On Screen Display disappear.

Remote Control Mode

Follow steps **1** and **2** on page 47.

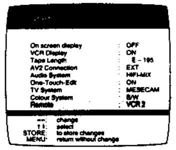
3 Select **Remote**.





```
On screen display   : OFF
VCR Display         : ON
Tape Length         :  E - 195
AV2 Connection      : EXT
Audio System        : HIFI-MIX
One-Touch-Edit      : ON
TV System           : MESECAM
Colour System       : B/W
Remote              : VCR 1

   ←→: change
   ↑↓: select
STORE: to store changes
 MENU: return without change
```

4 Select **VCR 1** or **VCR 2**.



```
On screen display   : OFF
VCR Display         : ON
Tape Length         :  E - 195
AV2 Connection      : EXT
Audio System        : HIFI-MIX
One-Touch-Edit      : ON
TV System           : MESECAM
Colour System       : B/W
Remote              : VCR 2

   ←→: change
   ↑↓: select
STORE: to store changes
 MENU: return without change
```

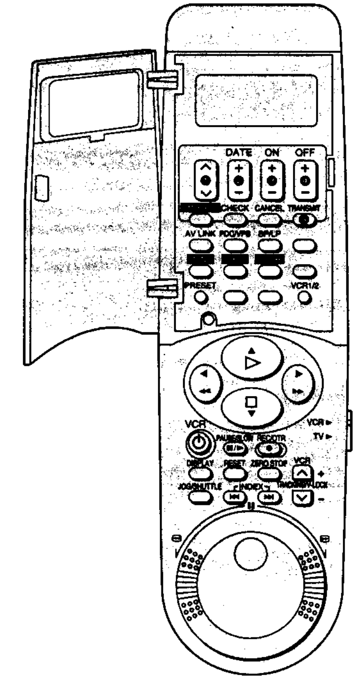
VCR 1: Set to this position on both the VCR and remote controller for normal use with one VCR.
VCR 2: Set to this position when using two Panasonic VCRs. This allows to operate VCR1 or VCR2 with remote controller.

- When changing the remote control mode, please be sure to press **STORE**. And then press **VCR 1/2** to change the remote control mode of the remote controller. If this is not done, it will note be possible to operate the VCR using the remote controller.

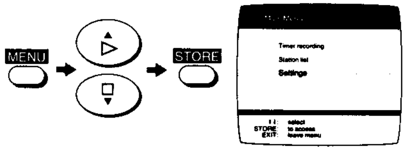
5 Press **STORE**, and then press **EXIT** to make On Screen Display disappear.

Language-Selection

To change the language setting for On Screen Display, follow the steps bellow.


DATE
ON
OFF
CHECK
CANCEL
TRANSMIT
AV LINK
PDC/VPS
SP/LP
PRESET
VCR1/2
VCR
VCR▸
TV▸
DISPLAY
RESET
ZERO STOP
JOG/SHUTTLE
INDEX

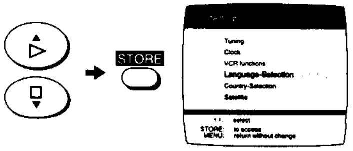
1 Press **MENU**, and then select **Settings**.



Timer recording
Station list
Settings

↑↓: select
STORE: to access
EXIT: leave menu

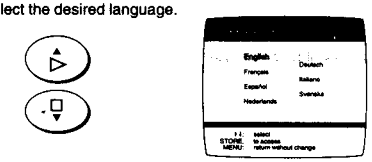
2 Select **Language-Selection**.



Tuning
Clock
VCR functions
Language-Selection
Country-Selection
Satellite

↑↓: select
STORE: to access
MENU: return without change

3 Select the desired language.



English
Français
Español
Nederlands
Deutsch
Italiano
Svenska

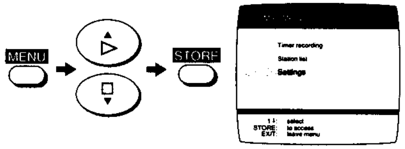
↑↓: select
STORE: to access
MENU: return without change

4 Press **STORE**, and then press **EXIT**.

Country-Selection

To change the country setting, follow the steps below.

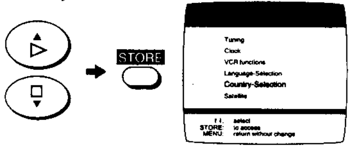
1 Press **MENU**, and then select **Settings**.



Timer recording
Station list
Settings

↑↓: select
STORE: to access
EXIT: leave menu

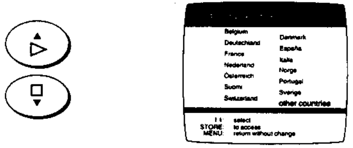
2 Select **Country-Selection**.



Tuning
Clock
VCR functions
Language-Selection
Country-Selection
Satellite

↑↓: select
STORE: to access
MENU: return without change

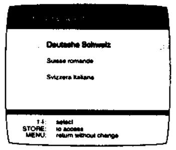
3 Select the desired country.



Belgium
Deutschland
France
Nederland
Österreich
Suomi
Switzerland
Danmark
España
Italia
Norge
Portugal
Sverige
other countries

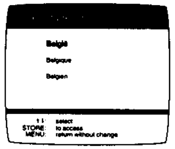
↑↓: select
STORE: to access
MENU: return without change

- When Switzerland or Belgium has been selected, operation moves to the screen which follows. Select the desired item.



Deutsche Schweiz
Suisse romande
Svizzera Italiana

↑↓: select
STORE: to access
MENU: return without change



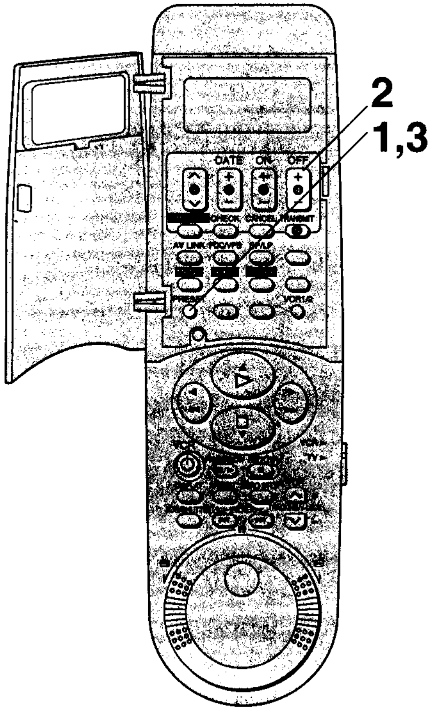
België
Belgique
Belgien

↑↓: select
STORE: to access
MENU: return without change

4 Press **STORE**, and then press **EXIT**.

Setting the Remote Controller for Operation of your TV

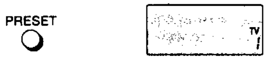
You can operate some TV manufacturers (see next page) using the supplied Remote Controller after this setting up.


2
1,3
DATE
ON
OFF
CHECK
CANCEL
TRANSMIT
AV LINK
PDC/VPS
SP/LP
PRESET
VCR1/2

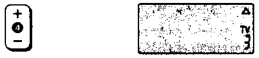
Preparation
Turn on the TV.

Operations	Display Symbols

1 Keep **PRESET** pressed for more than 2 seconds.

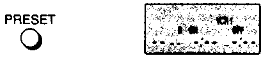


2 Press **OFF** several times.



- When the number matches the manufacturer of your TV, the TV's power is turned off. Read through the information on the following page as well.

3 Press **PRESET**.


PRESET
VCR1
OFF

- The remote controller display changes as shown.

How to change the number
Each time the "+" side of **OFF** is pressed, the number is counted up by one as follows:
→1→2→3...30

When the "−" side is pressed, the number is counted down by one in the reverse order to that indicated above.

Note:
Some TV models cannot be operated using this remote controller.

Number	Manufacturer
1–4	Panasonic
5	GRUNDIG, Blaupunkt, SIEMENS
6	PHILIPS, LOEWE, SAMSUNG, RADIOLA, DUAL, PYE, BUSH, GOODMANS, ELEMIS, CURTIS, SBR
7	SONY
8	METZ
9	FERGUSON, THOMSON, TELEFUNKEN, GOODMANS, SABA
10	FERGUSON, THOMSON, TELEFUNKEN, GOODMANS
11	FERGUSON, THOMSON, TELEFUNKEN, GOODMANS, SABA
12	FERGUSON, TELEFUNKEN, GOODMANS, SABA
13	TELEFUNKEN
14	FERGUSON, THOMSON, TELEFUNKEN, GOODMANS, SABA
15	FERGUSON, THOMSON, TELEFUNKEN, GOODMANS, SABA, NORDMENDE, BRANDT
16	TELEFUNKEN
17, 18	HITACHI
19	SIEMENS
20	SAMSUNG
21	ITT, NOKIA, SELECO
22	NOKIA, SALORA
23	MIVAR
24	TOSHIBA
25	SANYO
26	SHARP
27	JVC
28	MITSUBISHI
29, 30	HITACHI

When a TV manufacturer has the plural number

For example, When the number is 1, 2, 3 or 4 (Panasonic):

When the TV's power is turned off in step **2** on previous page, turn it back on and adjust the TV's volume using this remote controller. The volume can be adjusted if the number matches the TV manufacturer. If it is not possible to adjust the TV's volume, try setting the number (1 to 4) to match the TV manufacturer again until the volume can be adjusted.

Note:

FERGUSON, THOMSON, TELEFUNKEN, GOODMANS, SIEMENS, SAMSUNG, NOKIA, SABA and HITACHI have plural numbers. Although some models may operate with any of these numbers, other models may operate with only one number. Check each number in turn, and set the optimal number.

Precautions

Please read these cautions before you operate this VCR.

Avoid Sudden Changes in Temperature

If the VCR is suddenly moved from a cold place to a warm place, condensation may form on the tape and inside the VCR.

Humidity and Dust

Avoid places where there is high humidity or much dust, which may cause damage to internal parts.

Do Not Obstruct the Ventilation Holes

The ventilation holes prevent abnormal increase in temperature. Do not block or cover these holes. Especially avoid covering the holes with soft materials such as cloth or paper.

Keep away from High Temperature

Keep the VCR away from extreme direct heat such as direct sunlight, heating radiators, or closed automobiles.

Keep Magnets away

Never bring a magnet or magnetized object near the VCR because it will adversely affect the performance of the VCR.

No Fingers or Other Objects Inside

Touching internal parts of this VCR is dangerous, and may cause serious damage to the VCR. Do not attempt to disassemble the VCR. There are no user serviceable parts inside.

Keep Water away

Keep the VCR away from flower vases, tubs, sinks, etc. CAUTION: If liquids are spilled into the VCR, serious damage could occur. If you spill any liquid into the VCR, consult qualified service personnel.

Lightning

To avoid damage by lightning, disconnect the aerial plug from the VCR.

Cleaning the VCR

Wipe the VCR with a clean, dry cloth. Never use cleaning fluid, or other chemicals. And do not use compressed air to remove dust.

Stacking

Place the VCR in a horizontal position, and do not place anything heavy on it.

Video Head Clogging

The video heads place picture signals on the tape during recording and read picture signals from the tape during playback and they are, therefore, of critical importance for the picture quality. If the VCR is used over extremely long periods of time, these heads may become dirty and clogged. In such a case, the signals can no longer be recorded correctly, and the playback picture will be distorted accordingly. This is the case, for example, during the playback of a tape, the sound is reproduced normally, but no picture is seen, or the picture is greatly distorted. When such a symptom case occurs have the recorder checked by qualified service personnel.

Condensation may form in the VCR if:

- The VCR is in a room where the heater has just been turned on.
- The VCR is in a room with steam or high humidity.
- The VCR is brought from cold surroundings into a well-heated room.
- The VCR is suddenly brought from cool surroundings, such as an air-conditioned room or car, to a place which is hot and humid.

Note:

Do not operate the VCR for at least 1 hour if any of the above conditions occur.

This VCR does not incorporate a dew sensor.

Memo

SECTION 2
ADJUSTMENT PROCEDURES

2-1. DISASSEMBLY METHOD

2-1-1. DISASSEMBLY FLOW CHART

This flow chart indicates disassembly steps of the cabinet parts and the circuit boards in order to find the necessary items for servicing.
When reassembling, perform the steps in the reverse order.

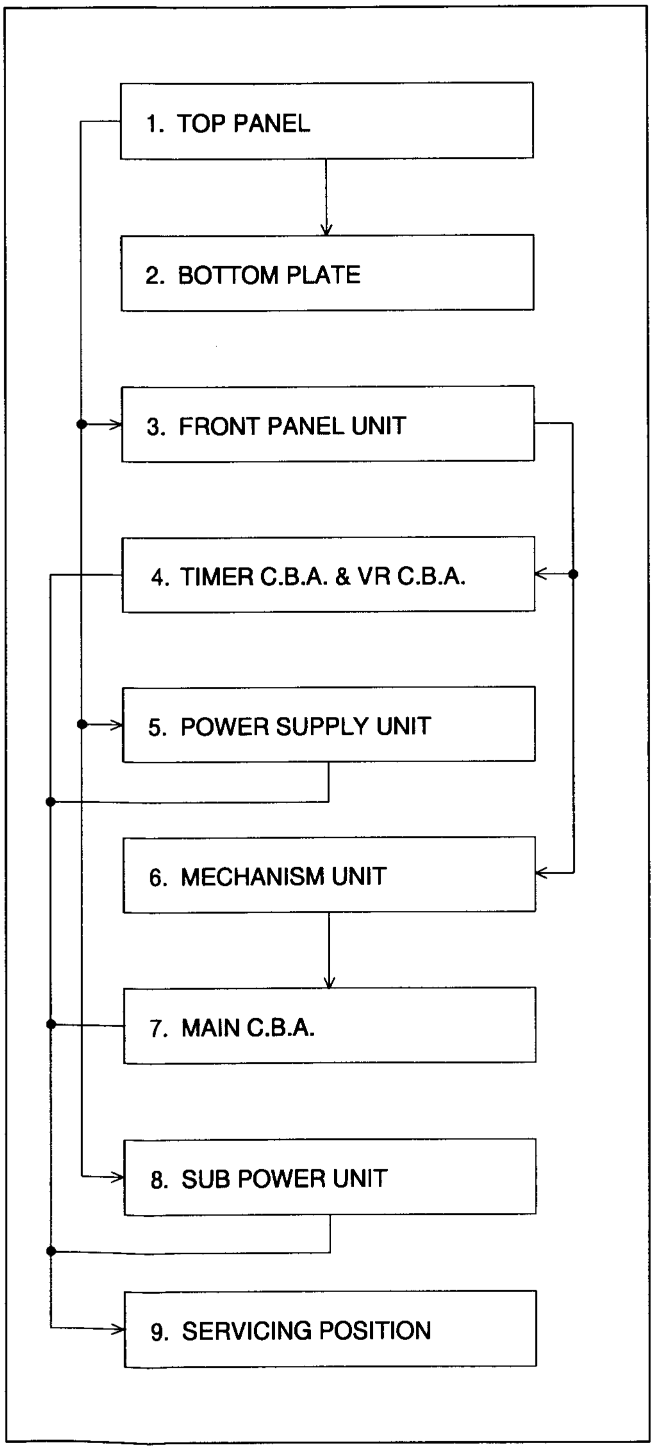

1. TOP PANEL
2. BOTTOM PLATE
3. FRONT PANEL UNIT
4. TIMER C.B.A. & VR C.B.A.
5. POWER SUPPLY UNIT
6. MECHANISM UNIT
7. MAIN C.B.A.
8. SUB POWER UNIT
9. SERVICING POSITION

Fig. D1

2-1-2. DETAIL OF DISASSEMBLY METHOD

1. REMOVAL OF THE TOP PANEL

Remove ...... 4 Screws (A)

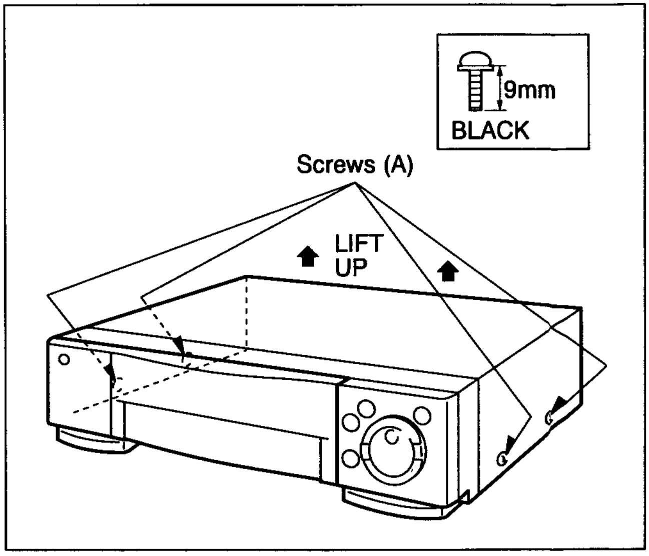

9mm
BLACK
Screws (A)
LIFT UP

Fig. D2

2. REMOVAL OF THE BOTTOM PLATE

Unlock .... 6 tabs (B)

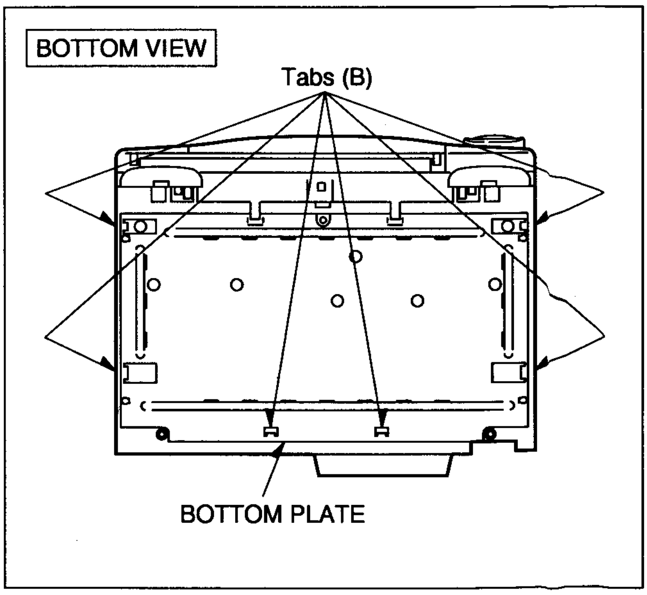

BOTTOM VIEW
Tabs (B)
BOTTOM PLATE

Fig. D3

3. REMOVAL OF THE FRONT PANEL UNIT

Pull out .... JOG & SHUTTLE Knob
Unlock .... 11 Tabs (C)

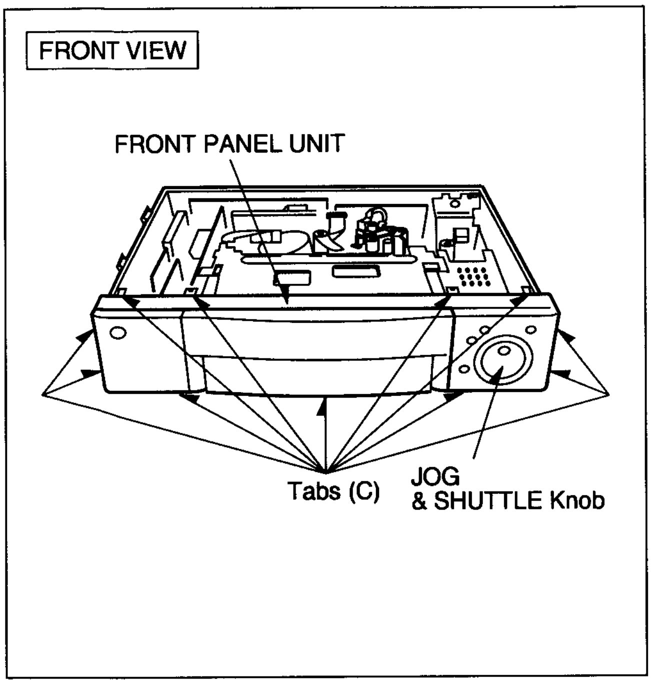

FRONT VIEW
FRONT PANEL UNIT
Tabs (C)
JOG
& SHUTTLE Knob

Fig. D4

4. REMOVAL OF THE TIMER C.B.A. & VR C.B.A.

REMOVAL OF THE TIMER C.B.A.
Disconnect........Bridge connector (D)
Unlock............... 5 Tabs (E)

REMOVAL OF THE VR C.B.A.
Disconnect........Bridge connector (D)
Unlock............... 2 Tabs (F)

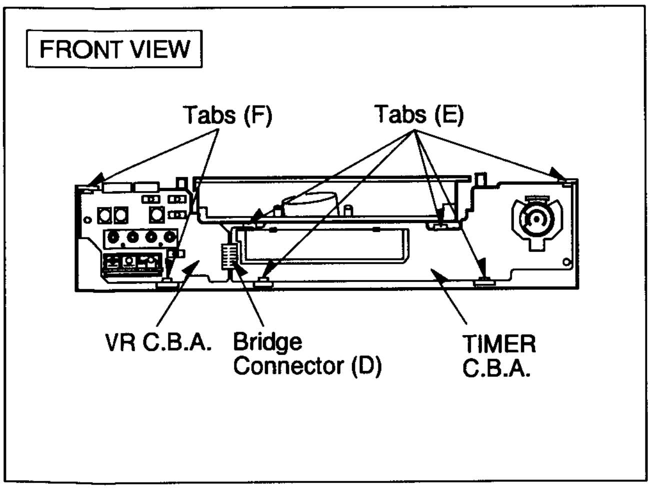

FRONT VIEW
Tabs (F)
Tabs (E)
VR C.B.A.
Bridge
Connector (D)
TIMER
C.B.A.

Fig. D5

5. REMOVAL OF THE POWER SUPPLY UNIT

Disconnect........Bridge connector (G)
Unlock............... 5 Tabs (H)
Unlock............... 2 Tabs (I)

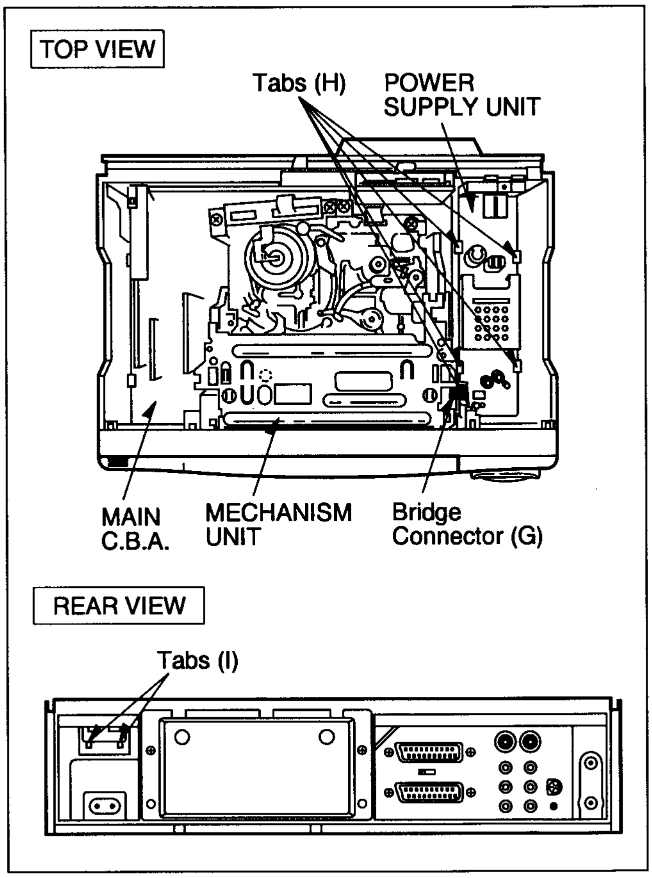

TOP VIEW
Tabs (H)
POWER
SUPPLY UNIT
MAIN
C.B.A.
MECHANISM
UNIT
Bridge
Connector (G)
REAR VIEW
Tabs (I)

Fig. D6

CAUTIONS:
Please pay an attention to disconnect the connector (P1001-P1102) which connected between Main C.B.A. and Power supply unit as shown below.

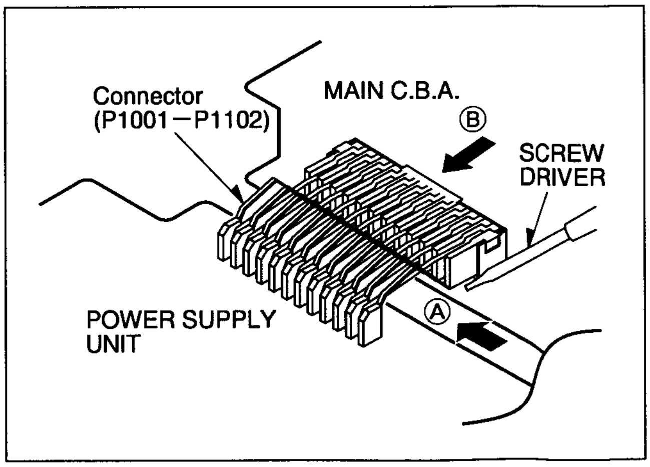

Connector
(P1001—P1102)
MAIN C.B.A.
Ⓑ
SCREW
DRIVER
POWER SUPPLY
UNIT
Ⓐ

Fig. D7

As above drawing, disconnect the connector by SCREW DRIVER from the direction Ⓐ.
Do not disconnect from direction Ⓑ because it is possibility to damage the parts located by the connector.

6. REMOVAL OF THE MECHANISM UNIT

Remove .... 3 Screws (J)
Remove .... Screw (K)

7. REMOVAL OF THE MAIN C.B.A.

Disconnect ... Bridge connector (G) [Fig. D6]
Remove .... 3 Screws (L)
Unlock........... 5 Tabs (M)

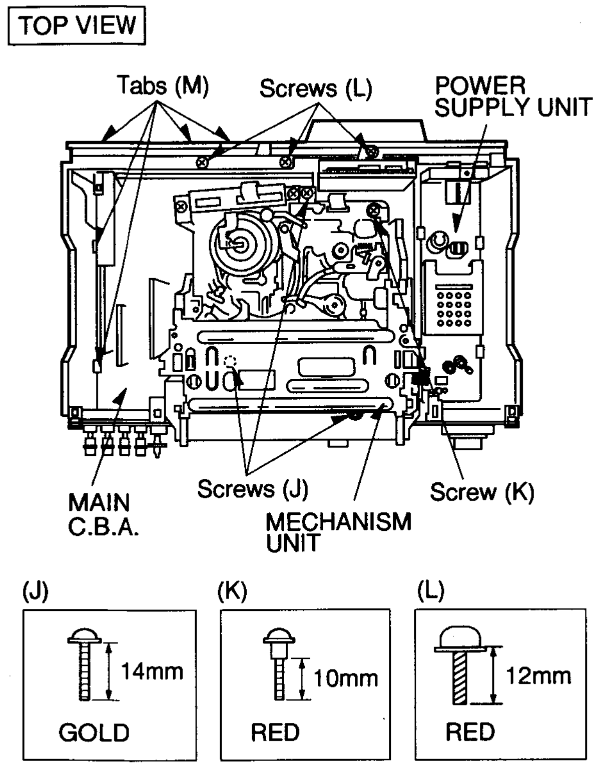

TOP VIEW
Tabs (M)
Screws (L)
POWER SUPPLY UNIT
MAIN C.B.A.
Screws (J)
MECHANISM UNIT
Screw (K)
(J)
14mm
GOLD
(K)
10mm
RED
(L)
12mm
RED

Fig. D8

8. REMOVAL OF THE SUB POWER UNIT

Remove .... 2 Screws (N)
Unlock........... 5 Tabs (O)

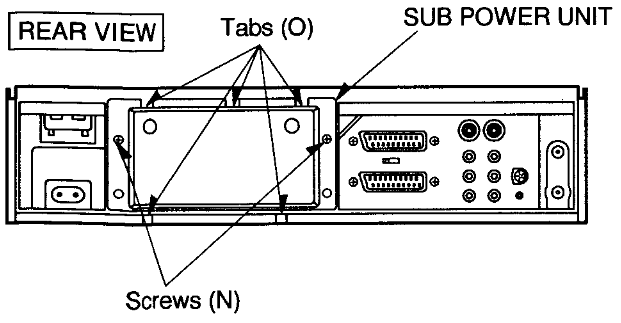

REAR VIEW
Tabs (O)
SUB POWER UNIT
Screws (N)

Fig. D9

9. SERVICING POSITION

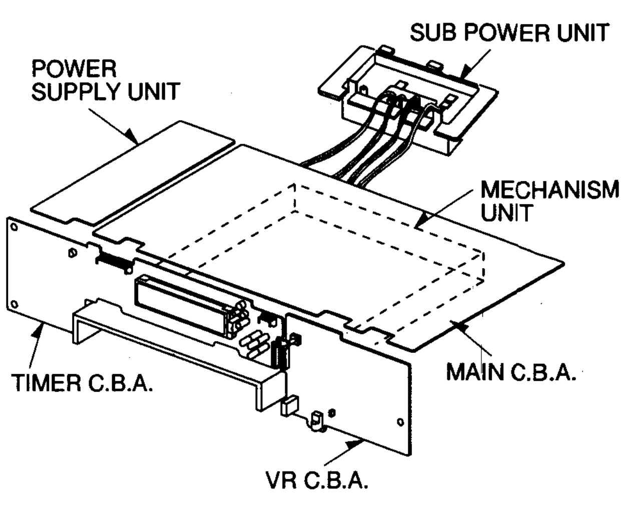

SUB POWER UNIT
POWER SUPPLY UNIT
MECHANISM UNIT
TIMER C.B.A.
MAIN C.B.A.
VR C.B.A.

Fig. D10

2-2. MECHANICAL ADJUSTMENT PROCEDURES

The mechanical chassis of this model is the K Mechanical Chassis.
Therefore refer to the Service Manual for K Mechanical Chassis. (Order No. VRD9307M131)

CAUTIONS:

To make a Adjustment Mode for Tape Interchangeability, there are two ways to turn off the Auto Tracking.

(1) Connect a jumper wire between TL SERV and GND as shown Location of Test Points & Controls (Page: 2-4).
(2) Turn the Shuttle Ring to FF then push the EJECT button 3 times to set the Service Mode 2.

2-3. DISASSEMBLY PROCEDURES OF MECHANISM

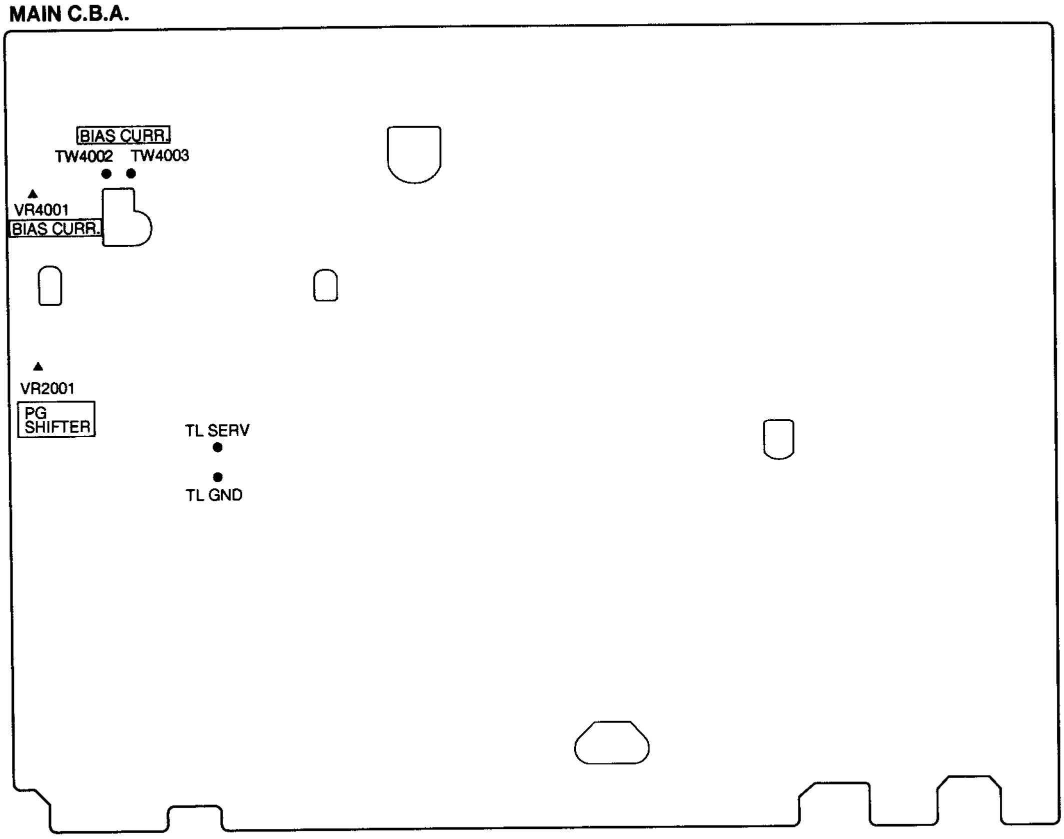
The mechanical chassis of this model is the K Mechanical Chassis.
Therefore refer to the Service Manual for K Mechanical Chassis. (Order No. VRD9307M131)

2-4. ASSEMBLY PROCEDURES OF MECHANISM

The mechanical chassis of this model is the K Mechanical Chassis.
Therefore refer to the Service Manual for K Mechanical Chassis. (Order No. VRD9307M131)

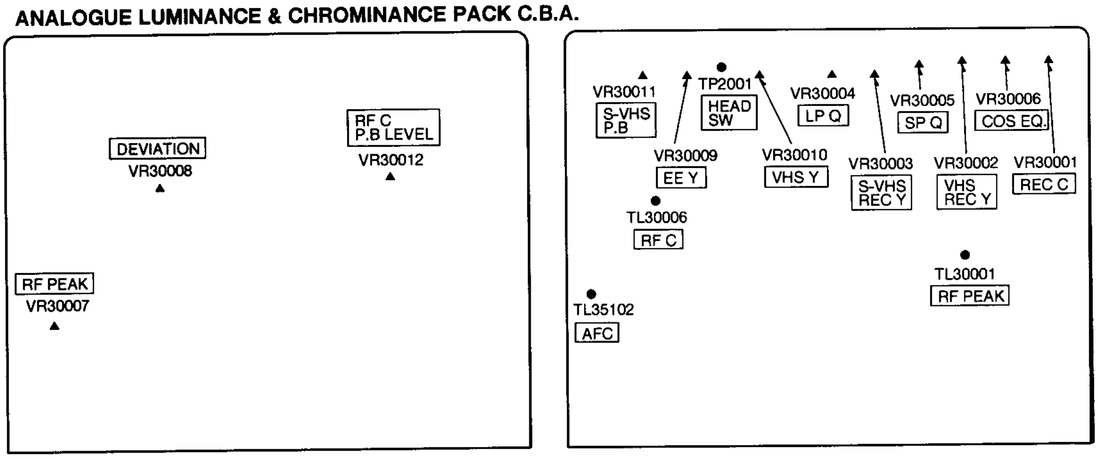
LOCATION OF TEST POINTS & CONTROLS

MAIN C.B.A.


BIAS CURR.
TW4002
TW4003
VR4001
BIAS CURR.
VR2001
PG SHIFTER
TL SERV
TL GND

(FOIL SIDE)

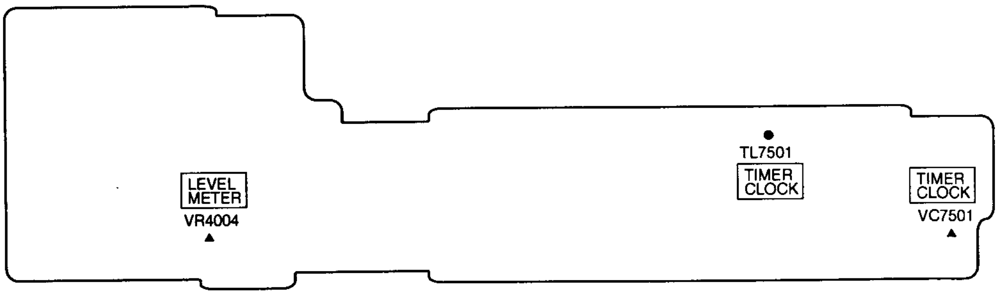
ANALOGUE LUMINANCE & CHROMINANCE PACK C.B.A.


DEVIATION
VR30008
RF C P.B LEVEL
VR30012
RF PEAK
VR30007
VR30011
S-VHS P.B
TP2001
HEAD SW
VR30004
LP Q
VR30005
SP Q
VR30006
COS EQ.
VR30009
EE Y
VR30010
VHS Y
VR30003
S-VHS REC Y
VR30002
VHS REC Y
VR30001
REC C
TL30006
RF C
TL30001
RF PEAK
TL35102
AFC

(COMPONENT SIDE)

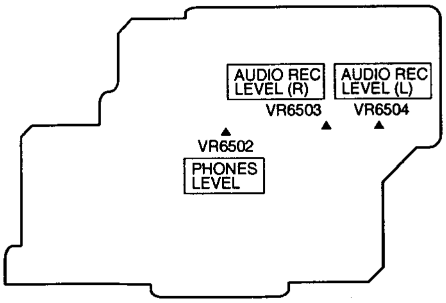
(FOIL SIDE)

TIMER C.B.A.


LEVEL METER
VR4004
TL7501
TIMER CLOCK
TIMER CLOCK
VC7501

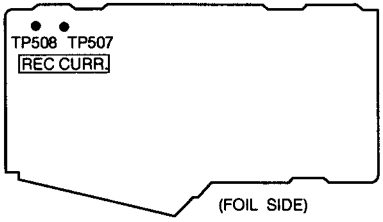
(FOIL SIDE)

VR C.B.A.

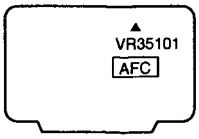

AUDIO REC LEVEL (R)
AUDIO REC LEVEL (L)
VR6503
VR6504
VR6502
PHONES LEVEL

(FOIL SIDE)

HEAD AMP C.B.A.

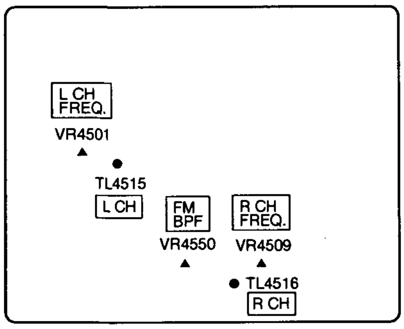

TP508
TP507
REC CURR.
(FOIL SIDE)

AFC PACK C.B.A.


VR35101
AFC

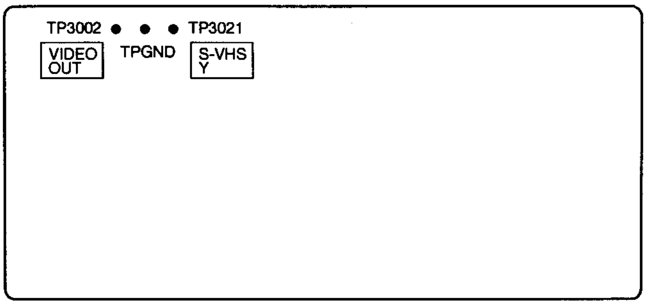
(COMPONENT SIDE)

Hi-Fi AUDIO PACK C.B.A.


L CH FREQ.
VR4501
TL4515
L CH
FM BPF
R CH FREQ.
VR4550
VR4509
TL4516
R CH

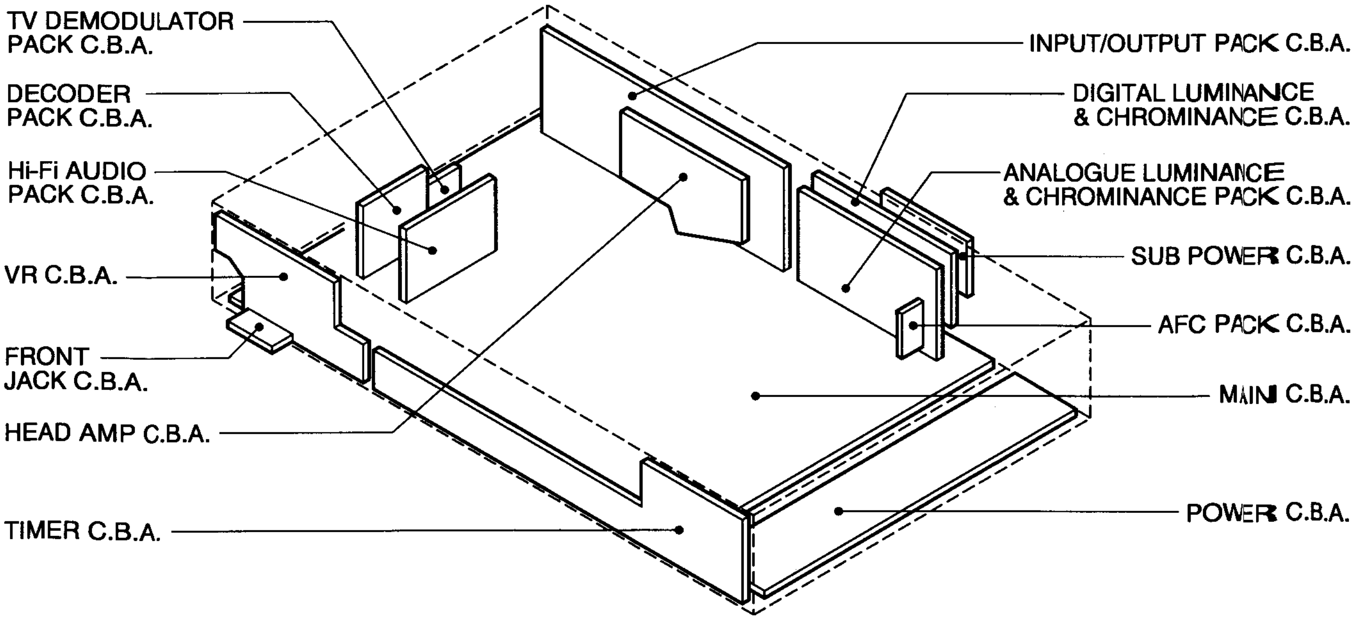
(FOIL SIDE)

INPUT/OUTPUT PACK C.B.A.


TP3002
TPGND
TP3021
VIDEO OUT
S-VHS Y

(FOIL SIDE)

CIRCUIT BOARD LAYOUT


TV DEMODULATOR PACK C.B.A.
DECODER PACK C.B.A.
Hi-Fi AUDIO PACK C.B.A.
VR C.B.A.
FRONT JACK C.B.A.
HEAD AMP C.B.A.
TIMER C.B.A.
INPUT/OUTPUT PACK C.B.A.
DIGITAL LUMINANCE & CHROMINANCE C.B.A.
ANALOGUE LUMINANCE & CHROMINANCE PACK C.B.A.
SUB POWER C.B.A.
AFC PACK C.B.A.
MAIN C.B.A.
POWER C.B.A.

2-3. ELECTRICAL ADJUSTMENT PROCEDURES

2-3-1. *TEST EQUIPMENT*

The following equipments are required for Electrical Adjustments.

1. Dual-Trace Oscilloscope ● Voltage Range: 0.005~5 V/div ● Frequency Range: DC~35 MHz ● Probes: 10:1/1:1	3. Universal Counter	8. Monitor TV
	4. Digital Volt Meter (D.V.M.)	9. DC Power Supply
2. Frequency Counter ● Frequency Range: 0~10 MHz ● Probes: 1:1	5. Video Sweep generator	10. VHS/S-VHS Blank tape
	6. Sinewave Generator	11. VHS Alignment Tape ● Part No.: VFJ8125H3F (PAL) ● Part No.: VFM8080HQFP (NTSC)
	7. Video Pattern Generator	

2-3-2. VCR SETTING

When no indication in the procedure, set each selector as follows.

1. AV OUT SW : NORMAL	4. EDIT SW : OFF	7. HEAD PHONE VR : CENTRE FIX
2. AV3 SELECT SW : FRONT	5. S-VHS SW : ON	8. AUDIO REC VR (L, R) : CENTRE FIX
3. TBC SW : ON	6. 3D DNR SW (CVC SW) : ON	

2-3-3. ADJUSTMENTS

ITEM	TP	ADJ.	MODE	INPUT	TAPE	M. EQ.	SPEC.	REMARKS
PG SHIFTER ADJUSTMENT	TP2001 TP3002	VR2001	PLAYBACK	—	ALIGNMENT TAPE (PAL)	OSCILLO-SCOPE	9.0+−0.5 (H) (See Fig. E1)	Set the TBC SW to OFF position.
VIDEO EE LEVEL ADJUSTMENT	TP3002	VR30009	STOP	PAL COLOUR BAR	—	OSCILLO-SCOPE	2.0+−0.1 (Vp-p) (See Fig. E2)	1. This adjustment has to be done before adjusting VHS and S-VHS PLAYBACK LEVEL ADJUSTMENT. 2. AV1 VIDEO OUT must be 75 ohm terminated.

ITEM	TP	ADJ.	MODE	INPUT	TAPE	M. EQ.	SPEC.	REMARKS
RECORDING CURRENT ADJUSTMENT	TP507 (HOT) TP508 (GND)	VR30002 (VHS Y) VR30003 (S-VHS Y) VR30001 (C)	RECORDING	PAL COLOUR BAR	S-VHS BLANK TAPE	OSCILLO-SCOPE	Y (VHS/S-VHS) : 140+−5 (mVp-p) C: 21+−2 (mVp-p) (See Fig. E3/E4)	1. Set the CVC SW to OFF position. 2. Connect a jumper wire between pin 96 of IC6001 and GND (TEST MODE). 3. Before adjusting the Chrominance level, rotate VR30003 until Luminance signal is minimum to eliminate Luminance compornent. 4. When adjusting S-VHS luminance level, set S-VHS SW to ON position. 5. When adjusting VHS luminance level, set S-VHS SW to OFF position. 6. Adjust Luminance level until the peak level of V-SYNC is 140+−5mVp-p (VHS and S-VHS MODE). 7. Disconnect the jumper wire.
S-VHS PLAYBACK LEVEL ADJUSTMENT	TP3002	VR30011	PLAYBACK (SELF REC.)	PAL COLOUR BAR	S-VHS BLANK TAPE	OSCILLO-SCOPE	2.0+−0.1 (Vp-p) (See Fig. E5)	1. Set the S-VHS SW to ON position. 2. Before this adjustment, VIDEO EE LEVEL and RECORDING CURRENT ADJUSTMENT must be done. 3. AV1 VIDEO OUT must be 75ohm terminated.
VHS LUMINANCE PLAYBACK LEVEL ADJUSTMENT	TP3002	VR30010	PLAYBACK (SELF REC.)	PAL COLOUR BAR	BLANK TAPE	OSCILLO-SCOPE	2.0+−0.1 (Vp-p) (See Fig. E6)	1. Set the S-VHS SW to OFF position. 2. Before this adjustment, VIDEO EE LEVEL, S-VHS PLAYBACK LEVEL and RECORDING CURRENT ADJUSTMENT must be done. 3. AV1 VIDEO OUT must be 75ohm terminated.
RF CHROMINANCE PLAYBACK LEVEL ADJUSTMENT	TL30006	VR30012	PLAYBACK (SELF REC.)	PAL COLOUR BAR	BLANK TAPE	OSCILLO-SCOPE	1.2+−0.1 (Vp-p) (See Fig. E7)	1. Set the S-VHS SW to OFF position. 2. AV1 VIDEO OUT must be 75ohm terminated. 3. Before this adjustment, RECORDING CURRENT ADJUSTMENT must be done. 4. Adjust VR30012 until Cyan level is 1.2+−0.1 (Vp-p).
DEVIATION ADJUSTMENT	TP3002	VR30008	PLAYBACK (SELF REC.)	PAL COLOUR BAR	BLANK TAPE	OSCILLO-SCOPE	2.0+−0.1 (Vp-p) (See Fig. E8)	1. Before this adjustment, VHS and S-VHS PLAYBACK LEVEL ADJUSTMENT must be done. 2. Supply colour bar signal. 3. Connect the oscilloscope to VIDEO OUT. 4. Record the colour bar signal and adjust VR30008 during recording. 5. Playback the just recorded portion and confirm PLAYBACK DEVIATION level is 2.0+−0.1Vp-p (Unterminated). If the signal level is out of the specification, repeat item 3 and item 4 until the signal becomes the specification.
VHS FREQUENCY RESPONSE ADJUSTMENT	TP3002	VR30005 (SP) VR30004 (LP)	SP/LP PLAYBACK (SELF REC.)	VIDEO SWEEP SIGNAL (Shown in Fig. E9)	BLANK TAPE	OSCILLO-SCOPE/ VIDEO SWEEP GENERATOR	SP: 0+−1 (dB)(90−110%) LP: 0+−1 (dB)(90−110%) (See Fig. E10)	1. Set Video Sweep Signal as shown in Fig. E9 and supply video sweep signal to S-VHS IN terminal. 2. Set the video mode to B/W mode by using Menu mode in OSD. 3. Set the S-VHS SW to OFF position.

ITEM	TP	ADJ.	MODE	INPUT	TAPE	M. EQ.	SPEC.	REMARKS
RF PEAK FREQUENCY ADJUSTMENT	TL30001	VR30007	STOP	VIDEO SWEEP SIGNAL (Shown in Fig. E12) TL30007	—	OSCILLO-SCOPE/ VIDEO SWEEP GENERATOR	SIGNAL LEVEL AT 7MHz POSITION IS MAXIMUM	1. Connect the Service circuit as shown in Fig. E11. 2. Set VR30006 to centre position. 3. Set video sweep signal generator (video signal only) as shown in Fig. E12. 4. Supply set up video sweep signal to TL30007 via Service circuit. 5. Adjust VR30007 until the signal level at 7MHz portion is maximum as shown in Fig. E13.
S-VHS FREQUENCY RESPONSE ADJUSTMENT	TP3021	VR30006	PLAYBACK (SELF REC.)	VIDEO SWEEP SIGNAL (Shown in Fig. E14)	S-VHS BLANK TAPE	OSCILLO-SCOPE/ VIDEO SWEEP GENERATOR	−4.5+−1 (dB)(55−70%) (See Fig. E15)	1. Before this adjustment, RF PEAK ADJUSTMENT must be done. 2. Set Video Sweep Signal as shown in Fig. E14 and supply video sweep signal to S-VHS IN terminal. 3. Set the video mode to B/W mode by using Menu mode in OSD. 4. Set the S-VHS SW to ON position.
AFC FREQUENCY ADJUSTMENT	TL35102	VR35101	STOP	—	—	FREQUNCY COUNTER	15625+−50 (Hz)	Connect a jumper wire between TL35101 and GND.
BIAS CURRENT ADJUSTMENT	TW4002 (HOT) TW4003 (GND)	VR4001	RECORDING	—	BLANK TAPE	V.T.V.M.	2.8+−0.1 (mVrms)	Set the S-VHS SW to OFF position.
CARRIER FREQUENCY ADJUSTMENT	TL4515 (L) TL4516 (R)	VR4501 (L) VR4509 (R)	RECORDING or STOP	—	BLANK TAPE	FREQUNCY COUNTER	L CH: 1.4+−0.003 (MHz) R CH: 1.8+−0.003 (MHz)	
FM B.P.F ADJUSTMENT	TL4515 (L) TL4516 (R)	VR4550	PLAYBACK	SINEWAVE 1.608MHz/ 400mVp-p PK4502-5	BLANK TAPE	V.T.V.M. SINEWAVE GENERATOR	L CH (TL4515)= R CH (TL4516)	1. Disconnect P502 (from MAIN C.B.A. to HEAD AMP C.B.A.). 2. The GND lead of oscilloscope must be connected to GND on HIFI AUDIO PACK C.B.A. to reduce the noise. 3. Supply the sinewave signal (1.608MHz/400mVp-p) to PK4502-5. 4. Adjust the level of the difference between Lch and R ch is equal. 5. After this adjustment, connect P502.
LEVEL METER SENSITIVITY ADJUSTMENT	LEVEL METER ON THE FIP	VR4004	STOP	SINEWAVE 1kHz/−6dB (AUDIO IN (L), (R))	—	V.T.V.M. SINEWAVE GENERATOR	0dB INDICATOR ON AUDIO LEVEL METER JUST LIGHTS UP	1. Select Stereo mode. (Both left and right indicators on the FIP are lit.) 2. Before adjusting, adjust HIFI REC VR until the signal level at Audio output terminals is 400mVrms.
TIMER REF. CLOCK ADJUSTMENT	*TL7501*	*VC7501*	STOP	—	—	UNIVERSAL COUNTER	7812.5+−0.015 (usec)	

2-3-4. FIGURES

Fig. E1

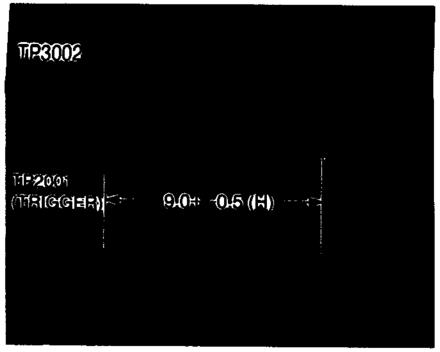


Fig. E2

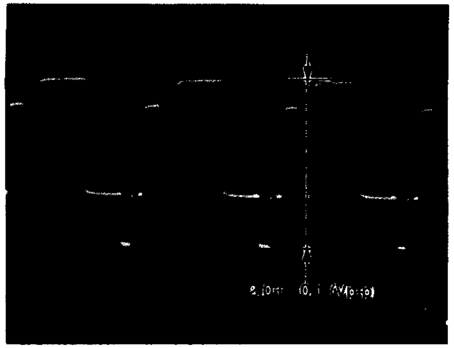


Fig. E3

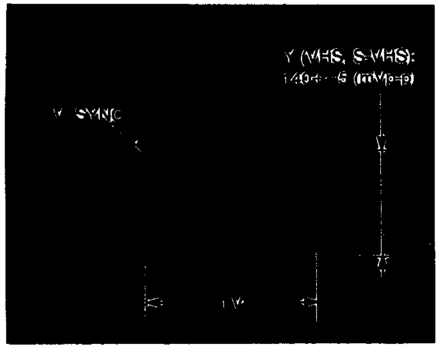


Fig. E4

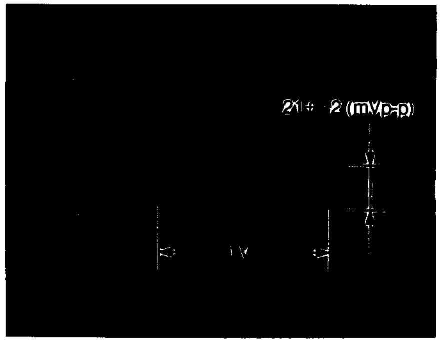


Fig. E5

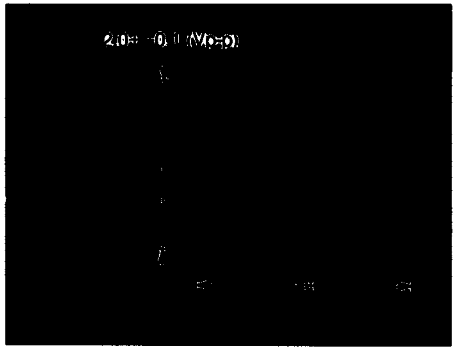


Fig. E6

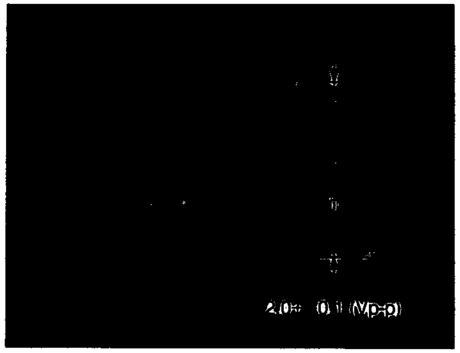


Fig. E7

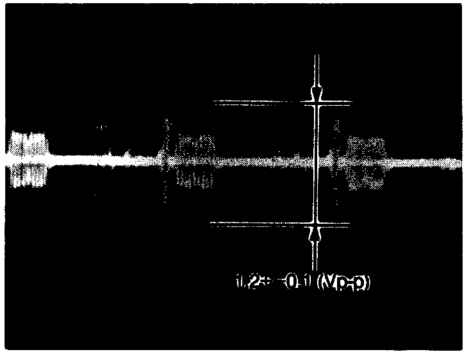


Fig. E8

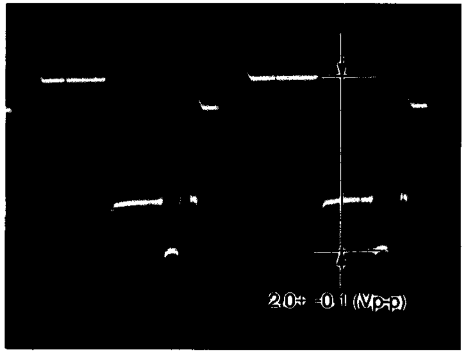
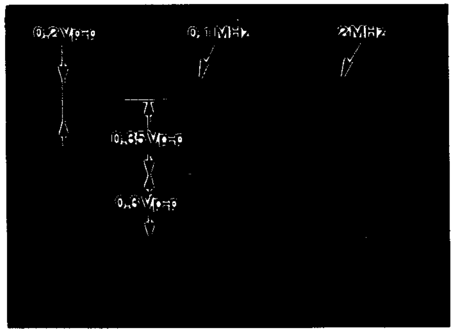


Fig. E9



CONDITION: BURST SIGNAL OFF
75 ohm TERMINATED

Fig. E10

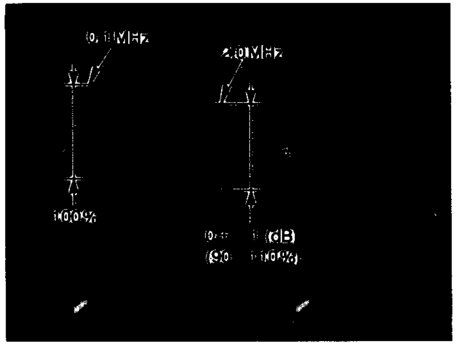
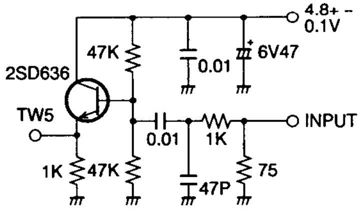


Fig. E11


4.8+ -
0.1V
47K
0.01
6V47
2SD636
TW5
0.01
1K
INPUT
1K
47K
47P
75

(Example)
75 ohm: ERDS2TJ750
1 Kohm: ERDS2TJ102
47 Kohm: ERD2TJ473
0.01 μ: ECCF1H103ZF
47 P: ECCF1H470JC
6 V47 μ: ECEA0JK470

Fig. E12

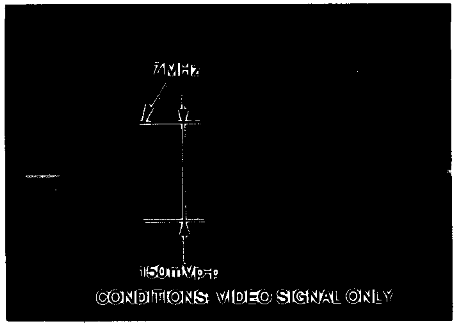


Fig. E13

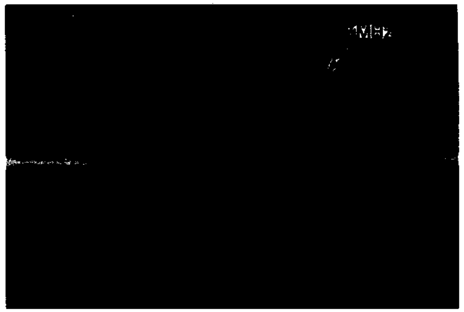
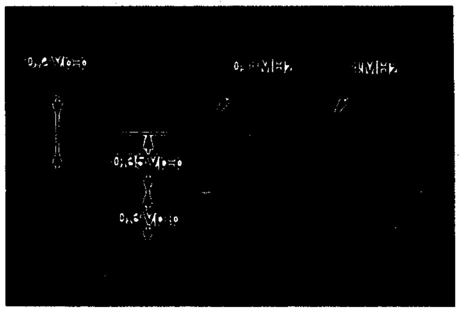
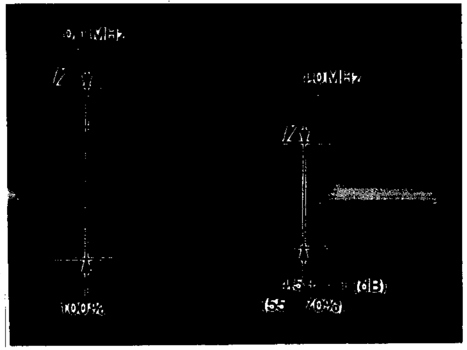


Fig. E14



CONDITION: BURST SIGNAL OFF
75 ohm TERMINATED

Fig. E15



SECTION 3
BLOCK DIAGRAMS & SCHEMATIC DIAGRAMS

3-1. ABBREVIATIONS

443NT [L]	4.43 NTSC Ⓛ
A. COMP	AUDIO COMPONENT SIGNAL
A. COMPO	AUDIO COMPONENT SIGNAL
A. D.P [L]	AUDIO DUBBING PAUSE Ⓛ
A. D/L [L]	AUDIO DUBBING PAUSE Ⓛ
A. DEF [S]	AUDIO DEFEAT
A. DEF [S] [L]	AUDIO DEFEAT
A. DUB P [L]	AUDIO DUBBING PAUSE Ⓛ
A. DUB [H]	AUDIO DUBBING Ⓗ
A. ERASE	AUDIO ERASE
A. H. SW	AUDIO HEAD SWITCHING PULSE
A. HEAD [R]	AUDIO HEAD (REC)
A. HEAD [W]	AUDIO HEAD (PLAY)
A. IN [L]	AUDIO INPUT (L)
A. IN [R]	AUDIO INPUT (R)
A. MUT [H]	AUDIO MUTE Ⓗ
A. MUTE [H]	AUDIO MUTE Ⓗ
A. OUT [L]	AUDIO OUTPUT (L)
A. OUT [R]	AUDIO OUTPUT (R)
A. RF OUT	AUDIO RF SIGNAL OUTPUT
A/VS/S. DATA	AV SW/SERIAL DATA
AC ONLINE	AC ONLINE
AC. O/EE. H	AC ONLINE/EE Ⓗ
AFC S C	AFC S CURVE
AFC [S]	AFC S CURVE
AFC. DEF	AFC DEFEAT
ARFC OUT	AUDIO RF SIGNAL OUTPUT
ART. V	ARTIFICIAL VERTICAL SYNC SIGNAL
ART. V. MM	ARTIFICIAL VERTICAL SYNC SIGNAL MONO MULTI
ART. V/H/N	ARTIFICIAL VERTICAL SYNC SIGNAL Ⓗ/NORMAL
AT. V/H/N	ARTIFICIAL VERTICAL SYNC SIGNAL
ATSW/TEST/NOR/SE	TEST/NORMAL/SERVICE
AUDIO IN [L]	AUDIO INPUT (L)
AUDIO IN [R]	AUDIO INPUT (R)
AUDIO OUT [L]	AUDIO OUTPUT (L)
AUDIO OUT [R]	AUDIO OUTPUT (R)
AUDIO SELECT [H]	AUDIO SELECT Ⓗ
AUDIO. L	AUDIO (L)
AUDIO. R	AUDIO (R)
AV CNT	AV CONTROL
AV CTL	AV CONTROL
AV CTL/S. CLK	AV CONTROL/SERIAL CLOCK
AV. C.M.	AV CONTROL MODE
AVCNT/METER. R	AV CONTROL/LEVEL METER (R)
AVSW/METER. L	AV SW/LEVEL METER (L)
B MODE. H	B MODE Ⓗ
B.G.P	BURST GATE PULSE
BACKUP 5V	BACK UP 5V
BAND. U.E.	BAND U
BANDVL. D	BAND VL
BI/MI [L]	BILINGUAL/MIX Ⓛ

BIL	BILINGUAL
BIL [L]	BILINGUAL Ⓛ
BIL. [H]	BILINGUAL Ⓗ
BIL/M1 [L]	BILINGUAL Ⓛ
BS CLOCK	BS CLOCK
BS DATA	BS DATA
BS LCH IN	BS L CHANNEL INPUT
BS MIX [H]	BS MIX Ⓗ
BS MON [H]	BS MONITOR Ⓗ
BS MONI [H]	BS MONITOR Ⓗ
BS RCH IN	BS R CHANNEL INPUT
BS VIDEO	BS VIDEO SIGNAL
BS VIDEO/BS1	BS VIDEO SIGNAL
BS [H]	BS Ⓗ
BS. LEVEL	BS LEVEL
BS. M [H]	BS MONITOR Ⓗ
BS/VTR [H]	BS/VTR Ⓗ
BUS CLK	BUS CLOCK
BUS LSN	BUS LISTEN
BUS TLK	BUS TALK
BUZZER	BUZZER
CAP EC	CAPSTAN TORQUE CONTROL
CAP M GND	CAPSTAN MOTOR GND
CAP. ET	CAPSTAN TORQUE CONTROL
CAP. FG1	CAPSTAN FG1 PULSE
CAP. FG2	CAPSTAN FG2 PULSE
CAS. SW	CASSETTE SW
CCN	PLAYBACK CONTROL SIGNAL (−)
CCP	PLAYBACK CONTROL SIGNAL (+)
CHM	CONTROL SIGNAL (+)
CHP	CONTROL SIGNAL (−)
CINEM [L]	CINEMA Ⓛ
CINEMA [L]	CINEMA Ⓛ
CINEMA/MIX	CINEMA/MIX
CKL	RATCH LOCK
CKS	SHIFT LOCK
CL	CLOCK
CLK	CLOCK
CLK (C.G)	CLOCK
CLOCK. IN	CLOCK INPUT
CLP	CLAMP
COL/B/W/NOR	COLOUR/BLACK & WHITE/NORMAL
COLOR [H]	COLOUR Ⓗ
CONV	CONVERTOR
CS	CHIP SELECT
CTL GND	CONTROL GND
CTL HEAD [+]	CONTROL HEAD (+)
CTL HEAD [−]	CONTROL HEAD (−)
CTL [+]	CONTROL HEAD (+)
CTL [−]	CONTROL HEAD (−)
CUE BIAS	CUE BIAS
CURRENT LIM	CURRENT LIMMITER
CYL ET	CYLINDER TORQUE CONTROL

CYL GND	CYLINDER GND
D.F.M. REC [H]	DELAIED FM RECORDING Ⓗ
D. FM REC [L]	DELAIED FM RECORDING Ⓛ
D. GND	DIGITAL GND
D. REC [H]	DELAYED RECORDING Ⓗ
D4/S. LED	D4/STILL LED
D4/STILLED	D4/STILL LED
DAC [CLK]	TUNER DAC (CLOCK)
DAC/FSCS	TUNER DAC/FS CHIP SELECT
DAREC [H]	DELAYED AUDIO RECORDING Ⓗ
DATA	DATA
DECODER [L]	DECODER (L)
DECODER [R]	DECODER (R)
DEW	DEW
DEW SNS	DEW SENSOR
DFMRE [H]	DELAYED FM AUDIO RECORDING Ⓗ
E. REC 5V	EXCEPT RECORDING 5V
EC	ERROR TORQUE CONTROL
ECR	ERROR TORQUE CONTROL REFERENCE VOLTAGE
EDT TRIG [L]	EDIT TRIGGER Ⓛ
EDIT [H]	EDIT Ⓗ
EE [H]	EE Ⓗ
EE [H]/INS [M]	EE Ⓗ/INSERT Ⓜ
EE. VV. TR	EE/VV/TRICK PLAY
EJECT. PO	EJECT POSITION
EJECT/VDET	EJECT/REVERSE SLOW LOCK
ENV. SEL	ENVELOPE SELECT
ENVE. OUT	ENVELOPE OUTPUT
ENVE. SEL	ENVELOPE SELECT
ENV SELECT	ENVELOPE SELECT
EP [H]	LP Ⓗ
EP/LP [H]	LP Ⓗ
EP/LP/SP	LP/SP
EP/SS [H]	LP/SLOW/STILL/STOP Ⓗ
EPROMCS	EPROM CHIP SELECT
EX. REC 5V	EXCEPT RECORDING 5V
FF/REW [L]	FIRST FORWARD/REWIND Ⓛ
FG1 IN	FG1 PULSE INPUT
FG2 IN	FG2 PULSE INPUT
FILTER ADJUSTMENT	FILTER ADJUSTMENT
FLY ERASE [H]	FLYING ERASE HEAD ON Ⓗ
FLY ON [H]	FLYING ERASE HEAD ON Ⓗ
FLY. E [H]	FLYING ERASE HEAD ON Ⓗ
FM MUT [H]	FM AUDIO MUTE Ⓗ
FM MUTE [H]	FM AUDIO MUTE Ⓗ
FM OUT [L]	FM OUTPUT (L)
FM OUT [R]	FM OUTPUT (R)
FM PACK OUT [L]	FM PACK OUTPUT (L)
FM PACK OUT [R]	FM PACK OUTPUT (R)
FM/BS SEL [L]	FM/BS SELECT (L)
FM/BS SEL [R]	FM/BS SELECT (R)
FS. CLK	FS CLOCK
FUL. E [H]	FULL ERASE HEAD ON Ⓗ
FULL. E [H]	FULL ERASE HEAD ON Ⓗ

FULL. E. 12V	FULL ERASE 12V
GND [A]	GND (ANALOG)
GND [TU]	GND (TUNER)
GND/N. SW. 12V	GND/NON SW 12V
H. SYNC	HORIZONTAL SYNC
H. AMP. SW	HEAD AMP SW PULSE
H. P <R>	HEAD PHONE (R)
H. P <L>	HEAD PHONE (L)
H. P GND	HEAD PHONE GND
H. P OUT [L]	HEAD PHONE OUTPUT (L)
H. P OUT [R]	HEAD PHONE OUTPUT (R)
H. SW	HEAD SW PULSE
HEAD PHONE [L]	HEAD PHONE (L)
HEAD PHONE [R]	HEAD PHONE (R)
HEAD SW	HEAD SW
HEATER [+]	HEATER (+)
HEATER [–]	HEATER (–)
HSS	HORIZONTAL SYNC SIGNAL
HTR [+]	HEATER (+)
HTR [–]	HEATER (–)
I RFE	REFERENCE CURRENT
ICL	CONTROL AGC CIRCUIT
IF	INTERMEDIATE FREQUENCY
IN SELA1	INPUT SELECT A1 POSITION
IN SELA2	INPUT SELECT A2 POSITION
IN SELA3	INPUT SELECT A3 POSITION
INS L/R [L]	INSERT Lch/Rch Ⓛ
INS. [H]	INSERT Ⓗ
INSEL A1	INPUT SELECT A1 POSITION
INSEL A2	INPUT SELECT A2 POSITION
INSERT	INSERT
INSERT [H]	INSERT Ⓗ
IO CS	INPUT/OUTPUT CHIP SELECT
JOG1	JOG1
JOG S3 LED/FOWRD	JOG LED/FORWARD LED
JOG/F. LED	JOG LED/FORWARD LED
JSB [H]	JSB Ⓗ
JST. CLCK	JUST CLOCK
JST. CLK	JUST CLOCK
JST. CLOCK	JUST CLOCK
L. OUT	Lch OUTPUT
L. CH [H]	Lch Ⓗ
L. CH [L]	Lch Ⓛ
LED (MAIN)	LED (MAIN)
LED (STEREO)	LED (STEREO)
LED (SUB)	LED (SUB)
LED CKL	LED SERIAL CLOCK
LED CKS	LED SERIAL CLOCK
LED DATA	LED SERIAL DATA
LINE IN 1 [L]	LINE INPUT 1 (L)
LINE IN 1 [R]	LINE INPUT 1 (R)
LINE IN 2 [L]	LINE INPUT 2 (L)
LINE IN 2 [R]	LINE INPUT 2 (R)
LINE IN V	LINE INPUT VIDEO
LINE IN [L]	LINE INPUT (L)

LINE IN [R]	LINE INPUT (R)	P-OFF [H]	POWER OFF Ⓗ
LINE OUT [L]	LINE OUTPUT (L)	P-OFF [L]	POWER OFF Ⓛ
LINE OUT [R]	LINE OUTPUT (R)	P. FAIL	POWER FAILURE DETECT
LP [H]	LP Ⓗ	P. OFF [H]	POWER OFF Ⓗ
LPTRI [L]	LP TRICK PLAY Ⓛ	P. OFF [L]	POWER OFF Ⓛ
Lch/A. DUB	Lch/AUDIO DUBBING	PAL [H]	PAL Ⓗ
M GND	MOTOR GND	PAL [L]/NTSC [H]	PAL Ⓛ/NTSC Ⓗ
M REG	MOTOR REGULATOR	PB ADJ OUT	PLAYBACK ADJUST OUTPUT
MAIN OUT	MAIN OUTPUT	PB OUT	PLAYBACK OUTPUT
MAIN [L]	MAIN Ⓛ	PB. H	PLAYBACK Ⓗ
MAIN/MONO	MAIN/MONAURAL	PFG	PG/FG
MAX IN	MAXIMAM INPUT	PHOTSN +B	PHOTO SENSOR +B
MES [H]	MESECAM Ⓗ	PICT. CNT	PICTURE CONTROL
MESE [H]	MESECAM Ⓗ	PLAY LED/RVS LED	PLAY LED/REVERSE LED
MESE [L]	MESECAM Ⓛ	PLAY. PO	PLAY POSITION
METER 5V	LEVEL METER 5V	PLAY/R. LED	PLAY LED/REVERSE LED
METER [L]	LEVEL METER (L)	PLY/DEW	PLAY/DEW Ⓗ
METER [R]	LEVEL METER (R)	POWER OFF [L]	POWER OFF Ⓛ
METER. L/AVS	LEVEL METER (L)	PREROLL [H]	PREROLL Ⓗ
METER. R/AVC	LEVEL METER (R)	PWRFAIL	POWER FAILURE DETECT
MI/BI [L]	MIX Ⓗ/BILIGUAL	R. CH [H]	Rch Ⓗ
MIC GND	MIC GND	R. CH [L]	Rch Ⓛ
MIC IN	MIC INPUT	R. ST	RESET
MIC IN [L]	MIC INPUT (L)	R/S/F	REVERSE Ⓗ/STOP Ⓜ/FORWARD Ⓛ
MIC IN [R]	MIC INPUT (R)	RCH [H]	Rch Ⓗ
MIC [H]	MIC Ⓗ	REC 12V	RECORDING 12V
MIX [H]	MIX Ⓗ	REC CHROMA	RECORDING CHROMINANCE SIGNAL
MIX [H]/CINEMA [L]	MIX Ⓗ/CINEMA SOUND Ⓛ	REC H	RECORDING Ⓗ
MIX/CINE	MIX Ⓗ/CINEMA SOUND Ⓛ	REC IN	RECORDING INPUT
MIX/CINEMA [L]	MIX Ⓗ/CINEMA SOUND Ⓛ	REC OUT [L]	RECORDING OUTPUT Ⓛ
MN. H/M. L	MONAURAL Ⓗ/MAIN Ⓛ	REC START	RECORDING START
MN. H/MAI. L	MONAURAL Ⓗ/MAIN Ⓛ	REC VR [C]	RECORDING VOLUME (COMMON)
MN2/MES. L	MONAURAL 2/MESECAM Ⓛ	REC VR [L]	RECORDING VOLUME (L)
MODE SEL	AUDIO MODE SELECT	REC VR [R]	RECORDING VOLUME (R)
MODE SW	AUDIO MODE SW	REC Y	RECORDING LUMINANCE SIGNAL
MODE. S. IN	AUDIO MODE SELECT INPUT	REC [H]	RECORDING Ⓗ
MODE. S. OUT	AUDIO MODE SELECT OUTPUT	REC. C	RECORDING CHROMINANCE SIGNAL
MONO [H]	MONAURAL Ⓗ	REC. Y	RECORDING LUMINANCE SIGNAL
MONO [H]/MAIN [L]	MONAURAL Ⓗ/MAIN Ⓛ	REC/EE CTL	RECORDING/EE CONTROL
MONO2 [L]	MONAURAL 2	REEL-T	REEL PULSE (TAKE-UP)
MONO2/MESE [FM(L)]	MONAURAL 2/MESECAM (FM Ⓛ)	REEL-S	REEL PULSE (SUPPLY)
MOTOR GND	MOTOR GND	REGULATOR FILTER	REGULATOR FILTER
MUTE	MUTE	RESET	RESET
N. A. REC [L]	NORMAL AUDIO RECORDING	REV M F/R	REVIEW MOTOR FORWARD/REVERSE
N. SW 12V	NON SW 12V		
N. SW. 5. DET	NON SW 5V DETECT	REV M V1	REVIEW MOTOR V1
NICAM	NICAM	REV M V2	REVIEW MOTOR V2
NICAM [L]	NICAM Ⓛ	REV MOTOR F/R	REVIEW MOTOR FORWARD/REVERSE
NOL [H]	PAL Ⓗ/4.43 NTSC Ⓜ/3.58 NTSC Ⓛ		
NOR/SOFT [H]	NORMAL/SOFT TAPE PLAY Ⓗ	REV MOTOR V1	REVIEW MOTOR V1
NORMAL [H]	NORMAL Ⓗ	REV MOTOR V2	REVIEW MOTOR V2
NR BIAS	NR BIAS	REV MOTOR [+]	REVIEW MOTOR (+)
NTSC [L]	NTSC Ⓛ	REV MOTOR [–]	REVIEW MOTOR (–)
OCH	CONTROL AGC CIRCUIT	REV. M. GND	REVIEW MOTOR GND
OUT	OUTPUT	RF. CHROMA	RF CHROMINANCE SIGNAL

RF OUT	RF OUTPUT
RF Y	RF LUMINANCE SIGNAL
RF. Y. IN	RF LUMINANCE SIGNAL INPUT
RF. Y. OUT	RF LUMINANCE SIGNAL OUTPUT
ROTAR. SW	ROTARY SW
ROTARY	ROTARY SW
RST	RESET
RST [L]	RESET Ⓛ
Rch/INST	Rch/INSERT
S IN	SERIAL DATA INPUT
S OUT	SERIAL DATA OUTPUT
S-PHOTO	SUPPLY PHOTO TRANSISTOR
S-RL. PLS	SUPPLY REEL PULSE
S. CLK	SERIAL CLOCK
S. CLK/AV	SERIAL CLOCK/AV
S. DATA	SERIAL DATA
S. DATA/A	SERIAL DATA
S. PHOTO	SUPPLY PHOTO TRANSISTOR
S. TAB [L]	SAFETY TAB SW ON Ⓛ
S/P/N	SECAM/PAL/NTSC
SC IN	SERIAL CLOCK INPUT
SC OUT	SERIAL CLOCK OUTPUT
SCK SELECT	SERIAL CLOCK SELECT
SEL OUT [L]	SELECT OUTPUT (L)
SEL OUT [R]	SELECT OUTPUT (R)
SHUTTLE 1	SHUTTLE 1
SIF	SOUND INTERMEDIATE FREQUENCY
SLMUT [H]	INPUT SELECT MUTE Ⓗ
SLNID [+]	SOLENOID (+)
SLNID [−]	SOLENOID (−)
SLW TR. MM	SLOW TRACKING MONO MULTI
SLW TR. REF	SLOW TRACKING REFERENCE VOLTAGE
SNS. GND	SENSOR GND
SOFT [H]	SOFT TAPE PLAY Ⓗ
SOFT [H]/NORMAL	SOFT TAPE PLAY Ⓗ/NORMAL Ⓗ
SOLENOID ON [L]	SOLENOID ON Ⓛ
SP [H]	SP Ⓗ
SP/L/SLP	SP/LP
SSS [L]	SLOW/STILL/STOP
STEREO LED	STEREO LED
STEREO [H]	STEREO Ⓗ
STEREO [L]	STEREO Ⓛ
STOP. PO	STOP POSITION
STOP/5V	STOP POSITION/5V
STOP1/TAPE SEL	STOP1 POSITION/TAPE SELECT
STOP1/PAL:ST	STOP1 POSITION/PAL
STOP2. PO	STOP 2 POSITION
STOP2/S-TAB	STOP 2 POSITION/SAFETY TAB SW
STREO [H]	STEREO Ⓗ
SUB BIAS	SUB BIAS
SUB. SW	SUB SW
SVHS CAS [L]	S-VHS CASSETTE Ⓛ
SW. 5. DET	SW 5V DETECT
SYNC [L]	SYNC Ⓛ

SYSCON 5V	SYSTEM CONTROL 5V
SYSTEM	SYSTEM SW
T-PHOTO	TAKE-UP PHOTO TRANSISTOR
T-RL. PLS	TAKE-UP REEL PULSE
T. BUSCLK	TIMER BUS CLOCK
T. BUSLSN	TIMER BUS LISTEN
T. BUSTLK	TIMER BUS TALK
T. END [L]	TAPE END Ⓛ
T. PHOTO	TAKE-UP PHOTO TRANSISTOR
TAPE END [L]	TAPE END Ⓛ
TAPE END [L]/CAM	TAPE END Ⓛ/CAMERA PAUSE
TEST	TEST MODE
TPZ	TRAPEZOIDAL WAVE CIRCUIT
TRIC [L]	TRIC PLAY Ⓛ
TRICK [L]	TRIC PLAY Ⓛ
TRK. ENV	AUTO TRACKING ENVELOPE DETECT
TU. AUDIO	TUNER AUDIO
TU. GND	TUNER GND
TU. V. IN	TUNER VIDEO SIGNAL INPUT
TU. VIDEO	TUNER VIDEO
TUN NOR IN	TUNER NORMAL INPUT
TUN R	TUNER AUDIO (R)
TUN. AUDIO IN	TUNER AUDIO INPUT
TUNER 12V	TUNER 12V
TUNER L	TUNER AUDIO (L)
TUNER V IN	TUNER VIDEO SIGNAL INPUT
TUNER [L]	TUNER AUDIO (L)
TUNER [N]	TUNER AUDIO (NORMAL)
TUNER [R]	TUNER AUDIO (R)
TUNER. 12	TUNER 12V
TUOFF [H]	TUNER OFF Ⓗ
TV. AUDIO	TV AUDIO
TV/VTR	TV/VTR
TXTON [L]	TEXT ON Ⓛ
U. REG45V	UNREGULATOR 45V
UNREG	UNREGULATOR
UNREG19V	UNREGULATOR 19V
V. REF	REFERENCE VOLTAGE
V. EE [H]	VIDEO EE Ⓗ
V. EE [L]	VIDEO EE Ⓛ
VCO REF	REFERENCE OSCILLATER
VD. IN	VIDEO SIGNAL INPUT
VD. OUT	VIDEO SIGNAL OUTPUT
VIDEO EE [L]	VIDEO EE Ⓛ
VIDEO IN	VIDEO SIGNAL INPUT
VIDEO OUT	VIDEO SIGNAL OUTPUT
VM	MOTOR VOLTAGE
VM DOWN [L]	MOTOR VOLTAGE DOWN Ⓛ
VSS	VERTICAL SYNC SIGNAL
VTR [H]	VTR Ⓗ
VTR. 12V	VTR 12V
X IN	OSCILLATOR INPUT
X OUT	OSCILLATOR OUTPUT

INPUT/OUTPUT CHART FOR IC6001

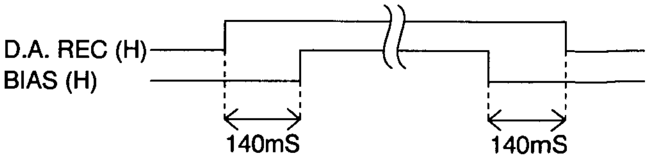
<table>
<tr><th>Pin Number</th><th>Input/Output</th><th>Port Name</th><th>Function</th></tr>
<tr><td>1</td><td>O</td><td>2H (H)</td><td>This port suplies the high signal in SP mode.</td></tr>
<tr><td>2</td><td>O</td><td>FM MUTE (H)</td><td>This port supplies the high signal in special playback (CUE, REV, SLOW, STILL) mode.</td></tr>
<tr><td>3</td><td>O</td><td>AUDIO MUTE (H)</td><td>This port supplies the high signal in special playback (CUE, REV, SLOW, STILL) mode.</td></tr>
<tr><td>4</td><td>O</td><td>MONO (H)</td><td>Compulsory monaural output.
Monaural on : High
Monaural off : Low</td></tr>
<tr><td>5</td><td>O</td><td>VIDEO EE (L)</td><td>EE/VV mode selection
EE mode : Low
VV mode : High</td></tr>
<tr><td>6</td><td>O</td><td>VA</td><td rowspan="2">Input Video Signal Selection.
The input signal is selected with SAT (H) at pin 24.
<table>
<tr><th>VCR IN</th><th>VA</th><th>VB</th><th>SAT</th></tr>
<tr><td>TUNER</td><td>L</td><td>L</td><td>L</td></tr>
<tr><td>AV1</td><td>H</td><td>L</td><td>L</td></tr>
<tr><td>AV2</td><td>L</td><td>H</td><td>L</td></tr>
<tr><td>AV3</td><td>H</td><td>H</td><td>L</td></tr>
<tr><td>SAT</td><td>L</td><td>L</td><td>H</td></tr>
</table></td></tr>
<tr><td>7</td><td>O</td><td>VB</td></tr>
<tr><td>8</td><td>O</td><td>V. CHANGE (H)</td><td>This port supplies high signal while the loading motor torque is increased in FF and REW modes.</td></tr>
<tr><td>9</td><td>O</td><td>LM LIMIT (H)</td><td>Loading motor torque limiter output.</td></tr>
<tr><td>10</td><td>O</td><td>FF/REW (L)</td><td>This port supplies low signal during FF and REW modes.</td></tr>
<tr><td>11</td><td>O</td><td>UNLOADING (H)</td><td>This port supplies high signal while the mechanism is unloaded.</td></tr>
<tr><td>12</td><td>O</td><td>LOADING (H)</td><td>This port supplies high signal while the mechanism is loaded.</td></tr>
<tr><td>13</td><td>O</td><td>D.A. REC (H)</td><td rowspan="2">Normal audio recording control.

</td></tr>
<tr><td>14</td><td>O</td><td>BIAS (H)</td></tr>
<tr><td>15</td><td>O</td><td>RGB</td><td>AV1 output selection control.
RGB SW OFF: HIGH
RGB SW ON : LOW</td></tr>
<tr><td>16</td><td>I</td><td>SHORT CHECK (H)</td><td>DC voltage (BIAS (H)) detection.
● When the low voltage is detected in recording mode, the VCR is turned off.
● When the high voltage is detected in except recording mode, the VCR is turned off.</td></tr>
<tr><td>17</td><td>I</td><td>S-VHS PB (H)</td><td>This port supplies high signal during S-VHS playback.</td></tr>
<tr><td>18</td><td>O</td><td>PB AI2 (H)</td><td>AI playback control.</td></tr>
<tr><td>19</td><td>O</td><td>PB AI1 (H)</td><td>AI playback control.</td></tr>
</table>

Fig. MP1

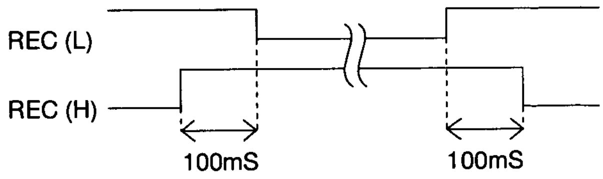
<table>
<tr><th>Pin Number</th><th>Input/Output</th><th>Port Name</th><th>Function</th></tr>
<tr><td>20</td><td>I</td><td>S-TAB (L)</td><td>This port receives low signal while the cassette tape with safety tab is inserted.</td></tr>
<tr><td>21</td><td>I</td><td>POSITION SW1</td><td rowspan="3">
<table>
<tr><th>P. SW 3</th><th>P. SW 2</th><th>P. SW 1</th><th>Position (Mode) Name</th></tr>
<tr><td>O</td><td>O</td><td>O</td><td>EJECT</td></tr>
<tr><td>O</td><td>O</td><td>I</td><td>CASSETTE DOWN</td></tr>
<tr><td>O</td><td>I</td><td>O</td><td>REV, REV SLOW</td></tr>
<tr><td>O</td><td>I</td><td>I</td><td>MID (LOADING/UNLOADING)</td></tr>
<tr><td>I</td><td>O</td><td>O</td><td>PLAY/REC, STILL/PAUSE, CUE, FWD SLOW STOP3 *1</td></tr>
<tr><td>I</td><td>O</td><td>I</td><td>STOP</td></tr>
<tr><td>I</td><td>I</td><td>O</td><td>FF/REW</td></tr>
<tr><td>I</td><td>I</td><td>I</td><td>INTERMEDIATE</td></tr>
</table>
(*1) The Pinch Roller is on the capstan motor shaft.</td></tr>
<tr><td>22</td><td>I</td><td>POSITION SW2</td></tr>
<tr><td>23</td><td>I</td><td>POSITION SW3</td></tr>
<tr><td>24</td><td>O</td><td>SAT (H)</td><td>Input Video Signal selection control.
The output signal is selected with VA at pin 6 and VB at pin 7.</td></tr>
<tr><td>25</td><td>I</td><td>RESET (L)</td><td>This port is low while IC6001 is reset.</td></tr>
<tr><td>26</td><td>I</td><td>MODE SELECT</td><td>Connecting to GND.</td></tr>
<tr><td>27</td><td>I</td><td>ABS NORM IN</td><td>HIFI audio mode selection control.
● When the low voltage is detected, the audio output is compulsory normal audio mode.</td></tr>
<tr><td>28</td><td>I</td><td>CPB</td><td>AV2 terminal input/output control.</td></tr>
<tr><td>29</td><td>O</td><td>LINE (L)</td><td>Input signal control for HIFI audio circuit.
MIC/TUNER: HIGH
LINE : LOW</td></tr>
<tr><td>30</td><td>O</td><td>REC (L)</td><td rowspan="2">DC voltage control for recording mode.

</td></tr>
<tr><td>31</td><td>O</td><td>REC (H)</td></tr>
<tr><td>32</td><td>O</td><td>A. DUB (H)</td><td>This port supplies high signal during audio dubbing mode.</td></tr>
<tr><td>33</td><td>O</td><td>INSERT (H)</td><td>This port supplies low signal during insert mode.</td></tr>
<tr><td>34</td><td>O</td><td>TV</td><td>AV1 output signal select control.</td></tr>
<tr><td>35</td><td>O</td><td>TAPE SNS LED (L)</td><td>Sensor LED drive signal output.
● When this port supplies the low signal, the sensor LED is lit.</td></tr>
<tr><td>36</td><td>O</td><td>SYSTEM 5</td><td>Refer to Fig. MP. 6</td></tr>
<tr><td>37</td><td>I</td><td>5V (D)</td><td>5V</td></tr>
<tr><td>38</td><td>O</td><td>12MHz OSC OUT</td><td>Oscillator output.</td></tr>
<tr><td>39</td><td>I</td><td>12MHz OSC IN</td><td>Oscillator input.</td></tr>
<tr><td>40</td><td>O</td><td>NC</td><td>Not used</td></tr>
</table>

Fig. MP2

Pin Number	Input/Output	Port Name	Function
41	I	XI	Connecting to GND.
42	I	VSS2	GND
43	O	FULL ERASE (H)	Full erase on/off control. ON : HIGH OFF: LOW
44	O	D. REC (H)	Video signal recording on/off control.
45	O	D. FM. REC (H)	HIFI audio signal recording on/off control.
46	O	FLY. ERASE (H)	Flying erase head on/off control. ON : High OFF: Low
47	O	REC CUR 1	AI REC current switching signal output.
48	O	REC CUR 2	
49	O	REC CUR 3	
50	O	A. H. SW	HIFI audio head switching signal output.
51	O	S. DATA OUT	Serial data output.
52	I	S. DATA IN	Serial data input.
53	O	S. CLOCK	Serial clock output.
54	O	5P S. DATA OUT	EDIT 5P serial data output.
55	I	5P S. DATA IN	EDIT 5P serial data input.
56	O	5P S. CLOCK	EDIT 5P serial clock output.
57	O	CAP R/S/F	Capstan rotation direction control. REVERSE: HIGH STOP : MIDDLE FOWARD : LOW
58	O	CURRENT LIMIT	Capstan motor current limitter output.
59	O	ENV2	AI PB control signal output.
60	O	CYL AI (H)	This port supplies high signal during CYL AI mode.
61	O	ART V/H/N	This port supplies artificial vertical sync signal to stabilize the picture in special playback mode.
62	O	VIDEO H. SW	Video head switching signal output.
63	O	ROTARY SW	Rotary switching signal output.
64	O	H. AMP. SW	Head amp switching signal output.
65	I	ENVE SELECT	This port receives the playback envelope signal level to select the video head in special playback mode.
66	I	MIC (H)	Mic. detection control. Connecting Mic. : High No connecting Mic. : Low

Fig. MP3

<table>
<tr><th>Pin Number</th><th>Input/Output</th><th>Port Name</th><th>Function</th></tr>
<tr><td>88</td><td>O</td><td>NC</td><td>Not used</td></tr>
<tr><td>94</td><td>I</td><td>T- PHOTO</td><td>This port receives the signal (less than 2.4V) when take-up photo sensor detects the tape begining.</td></tr>
<tr><td>95</td><td>I</td><td>S-PHOTO</td><td>This port receives the signal (less than 2.4V) when supply photo sensor detects the tape end.</td></tr>
<tr><td>96</td><td>I</td><td>NORMAL/
SERVICE/TEST</td><td>NORMAL/SERVICE/TEST mode selection.
<table>
<tr><th>INPUT VOLTAGE</th><th>MODE</th></tr>
<tr><td>MORE THAN 4.0V</td><td>NORMAL</td></tr>
<tr><td>2.5V~4.0V</td><td>SERVICE</td></tr>
<tr><td>LESS THAN 2.5V</td><td>TEST</td></tr>
</table></td></tr>
<tr><td>97</td><td>I</td><td>TBC SW</td><td>TBC on/off control.
TBC on : High</td></tr>
<tr><td>98</td><td>I</td><td>STEREO/
BILINGUAL</td><td>Audio mode detection for display on the OSD.
<table>
<tr><th>INPUT VOLTAGE</th><th>DISPLAY</th></tr>
<tr><td>MORE THAN 4.2V</td><td>NO DISPLAY</td></tr>
<tr><td>3.0V~4.2V</td><td>MONO 1</td></tr>
<tr><td>2.0V~3.0V</td><td>BILINGUAL</td></tr>
<tr><td>0.8V~2.0V</td><td>MONO 1+2</td></tr>
<tr><td>LESS THAN 0.8V</td><td>STEREO</td></tr>
</table></td></tr>
<tr><td>99</td><td>I</td><td>DEW SNS</td><td>This port is more than 1.36V during detecting the dew formation.</td></tr>
<tr><td>100</td><td>I</td><td>TEST SIG. SW</td><td>RF test signal on/off switching signal.
Test signal on : Low</td></tr>
<tr><td>101</td><td>I</td><td>GND</td><td>Not used</td></tr>
<tr><td>102</td><td>I</td><td>GND</td><td>Not used</td></tr>
<tr><td>103</td><td>I</td><td>CPS (H)</td><td>Component (Low)/Composit (High) select control.</td></tr>
<tr><td>104</td><td>I</td><td>EDIT (H)</td><td>EDIT on/off switching control.
EDIT on : High</td></tr>
<tr><td>105</td><td>I</td><td>TRACKING ENVE</td><td>Playback envelope input for tracking adjustment.</td></tr>
<tr><td>106</td><td>I/O</td><td>EDIT TRIG</td><td>Trigger signal in/output for synchronized editing.</td></tr>
<tr><td>107</td><td>I/O</td><td>PB/TUN/LINE</td><td>Normal audio switching control.</td></tr>
<tr><td>108</td><td>O</td><td>SYSTEM 4</td><td>Refer to Fig. MP. 6</td></tr>
<tr><td>109</td><td>I/O</td><td>PREROLL</td><td>Preroll signal in/output for synchronized editing.</td></tr>
<tr><td>110</td><td>O</td><td>SYSTEM 2</td><td>Refer to Fig. MP. 6</td></tr>
<tr><td>111</td><td>O</td><td>SYSTEM 1</td><td>Refer to Fig. MP. 6</td></tr>
<tr><td>112</td><td>I/O</td><td>HIFI/MIX/NORM</td><td rowspan="2">Audio output mode control.
<table>
<tr><th rowspan="2"></th><th colspan="4">MODE</th></tr>
<tr><th>STEREO</th><th>L CH</th><th>R CH</th><th>NORMAL</th></tr>
<tr><td>HIFI/MIX/NORM</td><td>H</td><td>H</td><td>H</td><td>L</td></tr>
<tr><td>L CH/R CH/STEREO</td><td>L</td><td>H</td><td>Z</td><td>L</td></tr>
</table>
Z: HIGH IMPEDANCE</td></tr>
<tr><td>113</td><td>O</td><td>L CH/R CH/
STEREO</td></tr>
<tr><td>114</td><td>I</td><td>5V</td><td>VDD</td></tr>
</table>

Fig. MP4

<table>
<tr><th>Pin Number</th><th>Input/Output</th><th>Port Name</th><th>Function</th></tr>
<tr><td>115</td><td>O</td><td>TBC MODE 0</td><td rowspan="3">TBC control.
<table>
<tr><th></th><th>TBC SW</th><th>MODE</th><th>TBC (H)</th><th>TBC M0</th><th>TBC M1</th></tr>
<tr><td>EE</td><td>ON/OFF</td><td></td><td>L</td><td>H</td><td>H</td></tr>
<tr><td rowspan="4">VV</td><td>OFF</td><td></td><td>L</td><td>(*1)</td><td>(*1)</td></tr>
<tr><td rowspan="3">ON</td><td>PLAY</td><td>H</td><td>H</td><td>H</td></tr>
<tr><td>SLOW/STILL</td><td>H</td><td>L (*2)</td><td>H</td></tr>
<tr><td>CUE/REV</td><td>H</td><td>H</td><td>L</td></tr>
</table>
(*1) The condition is same as TBC ON under VV mode.
(*2) Low/High signal is supplied during slow mode.</td></tr>
<tr><td>116</td><td>O</td><td>TBC MODE 1</td></tr>
<tr><td>117</td><td>O</td><td>TBC (H)</td></tr>
<tr><td>118</td><td>O</td><td>AVPB (H)</td><td>AV1 PB (H) output control.</td></tr>
<tr><td>119</td><td>I</td><td>GND</td><td>GND</td></tr>
<tr><td>120</td><td>O</td><td>DEA</td><td rowspan="2">AV2 output signal selection control.
<table>
<tr><th>AV2 OUTPUT</th><th>DEA</th><th>DEB</th></tr>
<tr><td>TUNER</td><td>H</td><td>L</td></tr>
<tr><td>AV1</td><td>L</td><td>L</td></tr>
<tr><td>SAT</td><td>L</td><td>H</td></tr>
<tr><td>VCR OUT</td><td>H</td><td>H</td></tr>
</table></td></tr>
<tr><td>121</td><td>O</td><td>DEB</td></tr>
<tr><td>122</td><td>O</td><td>AI MES (H)</td><td>This port supplies high signal when measuring the head and tape condition to determine the optimum recording current before starting the AI recording.</td></tr>
<tr><td>123</td><td>O</td><td>POWER OFF (H)</td><td>Power on/off control.</td></tr>
<tr><td>124</td><td>O</td><td>TRICK (L)</td><td>This port supplies low signal during special playback (CUE, REV, SLOW, STILL) mode.</td></tr>
</table>

Fig. MP5

	MODE 1	MODE 2	MODE 3	MODE 4
PIN 111 (SYSTEM 1)	H: MESECAM L: PAL Z: AUTO	H: MESECAM L: PAL	H: PAL L: NTSC Z: AUTO	H: MESECAM L: PAL Z: AUTO
PIN 110 (SYSTEM 2)	H: EXCEPT NTSC L: NTSC-M	H: SECAM L: PAL Z: AUTO	——	H: EXCEPT NTSC L: NTSC-M
PIN 108 (SYSTEM 4)	H: PAL- I L: B/G/D/K	H: SECAM L: PAL	——	H: PAL-I L: B/G/D/K
PIN 36 (SYSTEM 5)	H: PAL L: NTSC	H: PAL L: NTSC	H: 50Hz L: 60Hz	H: PAL L: NTSC

Z: HIGH IMPEDANCE

Fig. MP6

INPUT/OUTPUT CHART FOR IC7501

Pin Number	Input/Output	Port Name	Function
1	O	L CH (L)	FIP level meter Lch (L)
2	I	AFC (S)	AFC S-CURVE
3	O	DEL (L)	AV2 connector detection DECODER: LOW EXT : HIGH
4	O	L CTL	LANK clock control
5	I	JOG1	JOG1
6	O	IC CLK	Tuner IC control clock
7	I	IR	Remote controller data
8	I	L CLK	LANK clock
9	O	FS CS (H)	FS chip select (H)
10	I	JOG2	JOG2
11	O	SAT IR	SAT IR output
12	I	POW FAIL (L)	Power fail detection
13	I	RESET (L)	Reset (L)
14	I	S CLK	Serial clock
15	I	S DATA IN	Serial data input
16	O	S DATA OUT	Serial data input
17	O	T CLK	Timer bus clock output
18	I	T LSN	Timer data input (from OSD)
19	O	T TLK	Timer data output (to OSD)
20	O	128Hz	128Hz
21	I	NC	Not used
22	O	STAND BY (L)	Stand by (L)
23	O	NC	Not used
24	O	FIP (L)	FIP heater on (L)

Fig. MP7

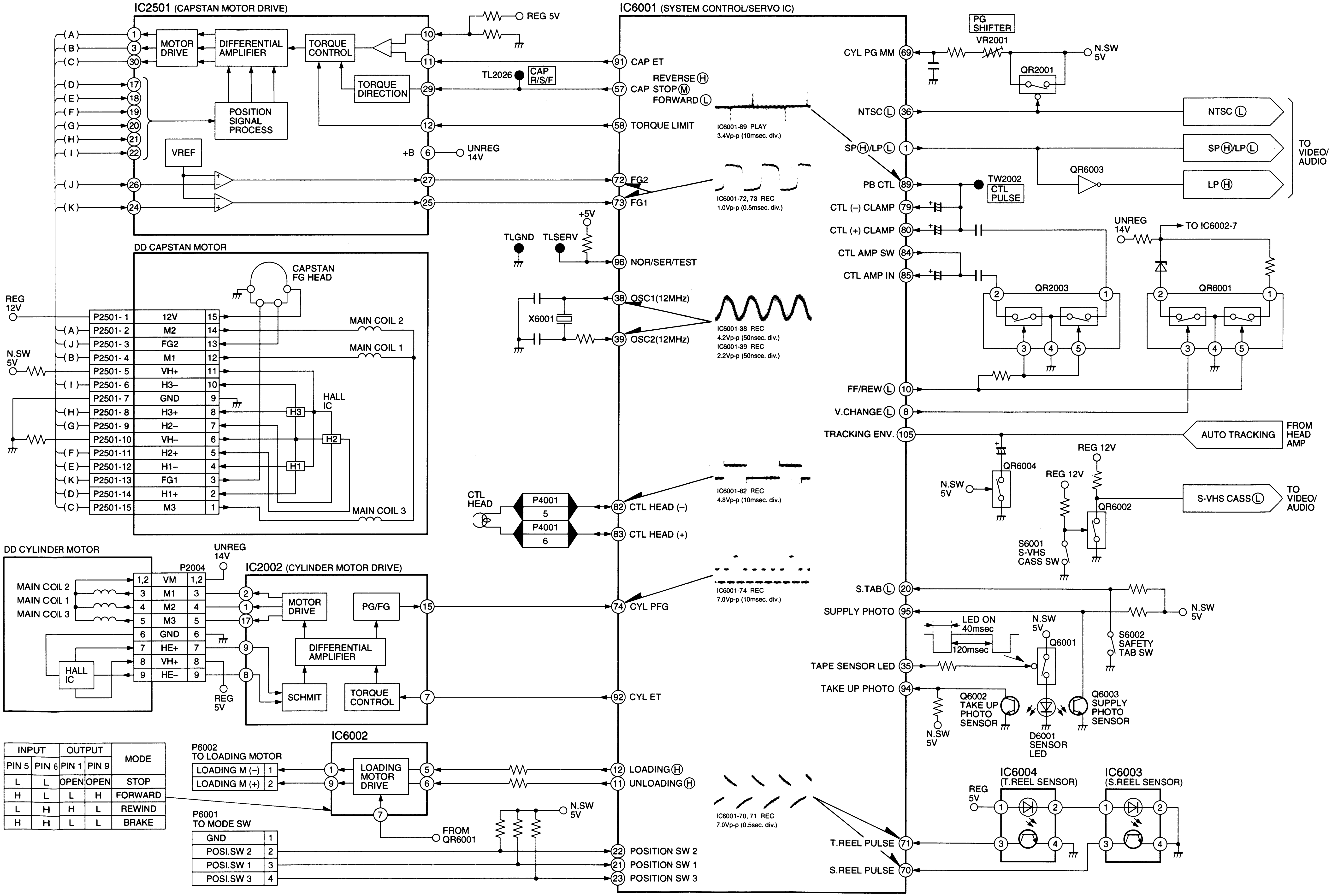
Pin Number	Input/Output	Port Name	Function
25 26 27 28 29	I	KEY SCAN	Key scan input
30	O	AUDIO DEF (H)	Audio defeat high output
31	O	R CH (L)	FIP level meter Rch (L)
32	O	P17	DGT1
33	O	P16	DGT2
34	O	P15	DGT3
35	O	P14	DGT4
36	O	P13	DGT5
37	O	P12	DGT6
38	O	P11	DGT7
39	O	P10	DGT8
40	O	P07	DGT9/Key scan output
41	O	P06	DGT10/Key scan output
42	O	P05	SEG J/Key scan output
43	O	P04	SEG I/Key scan output
44	O	P03	SEG H/Key scan output
45	O	P02	SEG D/Key scan output
46	O	P01	SEG E/Key scan output
47	O	P00	SEG C/Key scan output
48	O	P37	SEG G/Key scan output
49	O	P36	SEG F/Key scan output
50	O	P35	SEG B/Key scan output
51	O	P34	SEG A/Key scan output

Fig. MP8

Pin Number	Input/Output	Port Name	Function
52	O	AI ON (H)	AI on (H) output
53	O	OSD ON (H)	OSD on (H) output
54	O	METER OFF (H)	Level meter off (H) output
55	O	MONO (H)	Forced MONO (NICAM off) (H) output
56	—	VEE	−29V
57	—	VCC	+5V
58	O	XOUT	8.39MHz clock output
59	I	XIN	8.39MHz clock input
60	—	VSS	GND
61	I	XCIN	32KHz clock input
62	O	XCOUT	32KHz clock output
63	O	SIMUL (H)/SI (H)	Simul (H) output
64	O	SELECT MUTE (H)	Audio select mute (H) output

Fig. MP9

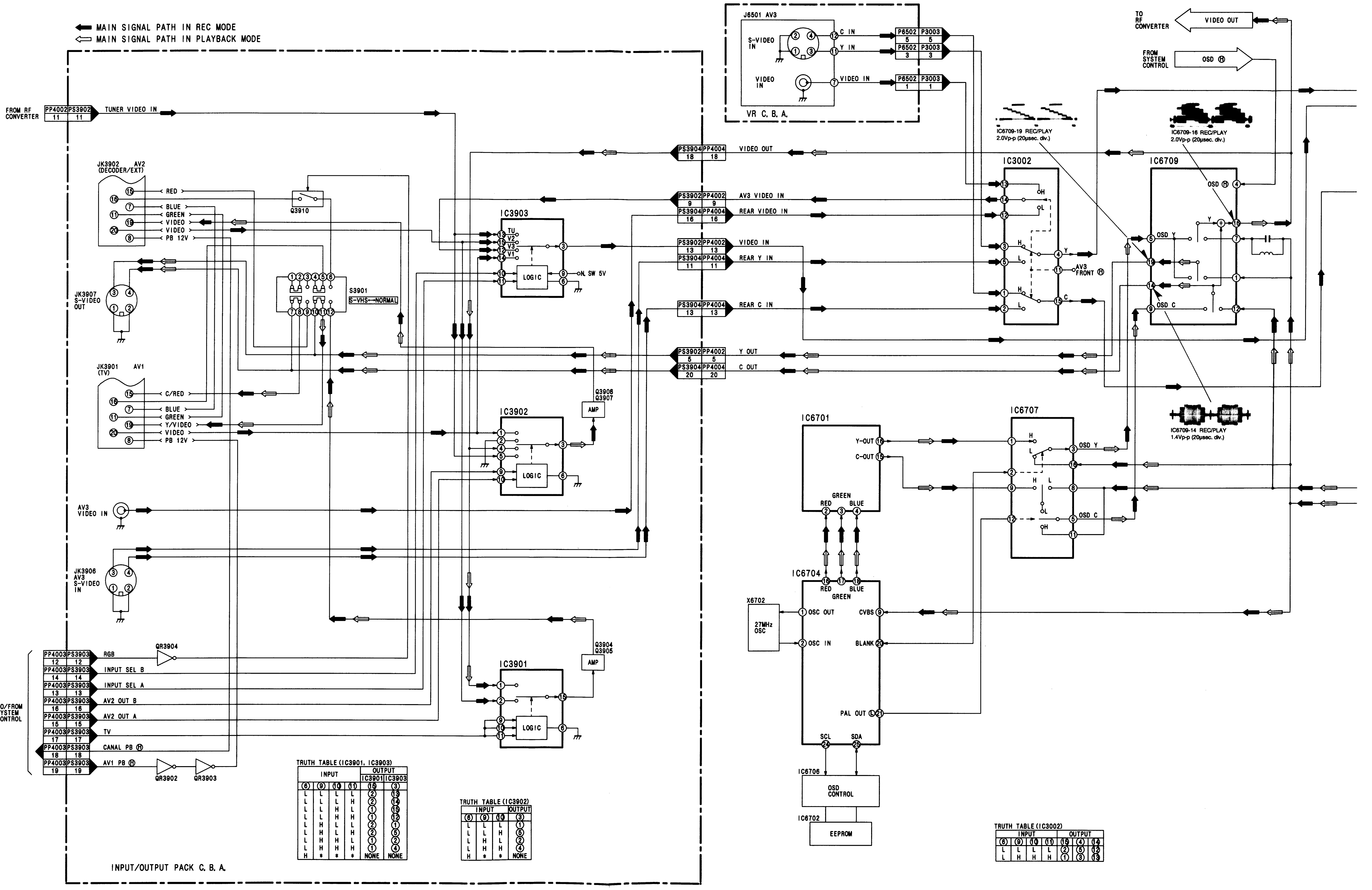
3-2. SYSTEM CONTROL & SERVO BLOCK DIAGRAM



IC2501 (CAPSTAN MOTOR DRIVE)
MOTOR DRIVE
DIFFERENTIAL AMPLIFIER
TORQUE CONTROL
TORQUE DIRECTION
POSITION SIGNAL PROCESS
VREF
+B
UNREG 14V
REG 5V
TL2026
CAP R/S/F
DD CAPSTAN MOTOR
CAPSTAN FG HEAD
MAIN COIL 2
MAIN COIL 1
MAIN COIL 3
HALL IC
H1
H2
H3
REG 12V
N.SW 5V
P2501-1 12V 15
P2501-2 M2 14
P2501-3 FG2 13
P2501-4 M1 12
P2501-5 VH+ 11
P2501-6 H3– 10
P2501-7 GND 9
P2501-8 H3+ 8
P2501-9 H2– 7
P2501-10 VH– 6
P2501-11 H2+ 5
P2501-12 H1– 4
P2501-13 FG1 3
P2501-14 H1+ 2
P2501-15 M3 1
IC6001 (SYSTEM CONTROL/SERVO IC)
91 CAP ET
57 CAP STOP Ⓜ
REVERSE Ⓗ
FORWARD Ⓛ
58 TORQUE LIMIT
72 FG2
73 FG1
+5V
TLGND
TLSERV
96 NOR/SER/TEST
38 OSC1(12MHz)
39 OSC2(12MHz)
X6001
IC6001-89 PLAY 3.4Vp-p (10msec. div.)
IC6001-72, 73 REC 1.0Vp-p (0.5msec. div.)
IC6001-38 REC 4.2Vp-p (50nsec. div.)
IC6001-39 REC 2.2Vp-p (50nsce. div.)
IC6001-82 REC 4.8Vp-p (10msec. div.)
IC6001-74 REC 7.0Vp-p (10msec. div.)
IC6001-70, 71 REC 7.0Vp-p (0.5sec. div.)
CTL HEAD
P4001 5
P4001 6
82 CTL HEAD (–)
83 CTL HEAD (+)
DD CYLINDER MOTOR
MAIN COIL 2
MAIN COIL 1
MAIN COIL 3
HALL IC
P2004
UNREG 14V
1,2 VM 1,2
3 M1 3
4 M2 4
5 M3 5
6 GND 6
7 HE+ 7
8 VH+ 8
9 HE– 9
REG 5V
IC2002 (CYLINDER MOTOR DRIVE)
MOTOR DRIVE
PG/FG
DIFFERENTIAL AMPLIFIER
SCHMIT
TORQUE CONTROL
74 CYL PFG
92 CYL ET
IC6002
P6002 TO LOADING MOTOR
LOADING M (–) 1
LOADING M (+) 2
LOADING MOTOR DRIVE
FROM QR6001
N.SW 5V
12 LOADING Ⓗ
11 UNLOADING Ⓗ
P6001 TO MODE SW
GND 1
POSI.SW 2 2
POSI.SW 1 3
POSI.SW 3 4
22 POSITION SW 2
21 POSITION SW 1
23 POSITION SW 3
PG SHIFTER
VR2001
N.SW 5V
QR2001
CYL PG MM 69
NTSC Ⓛ 36
SP Ⓗ/LP Ⓛ 1
PB CTL 89
TW2002
CTL PULSE
QR6003
NTSC Ⓛ
SP Ⓗ/LP Ⓛ
LP Ⓗ
TO VIDEO/ AUDIO
CTL (–) CLAMP 79
CTL (+) CLAMP 80
CTL AMP SW 84
CTL AMP IN 85
UNREG 14V
TO IC6002-7
QR2003
QR6001
FF/REW Ⓛ 10
V.CHANGE Ⓛ 8
TRACKING ENV. 105
AUTO TRACKING
FROM HEAD AMP
REG 12V
QR6004
N.SW 5V
REG 12V
QR6002
S6001 S-VHS CASS SW
S-VHS CASS Ⓛ
TO VIDEO/ AUDIO
S.TAB Ⓛ 20
SUPPLY PHOTO 95
N.SW 5V
S6002 SAFETY TAB SW
LED ON 40msec
120msec
N.SW 5V
Q6001
TAPE SENSOR LED 35
TAKE UP PHOTO 94
Q6002 TAKE UP PHOTO SENSOR
Q6003 SUPPLY PHOTO SENSOR
D6001 SENSOR LED
N.SW 5V
IC6004 (T.REEL SENSOR)
IC6003 (S.REEL SENSOR)
REG 5V
T.REEL PULSE 71
S.REEL PULSE 70

INPUT		OUTPUT		MODE
PIN 5	PIN 6	PIN 1	PIN 9	
L	L	OPEN	OPEN	STOP
H	L	L	H	FORWARD
L	H	H	L	REWIND
H	H	L	L	BRAKE

3-3. LUMINANCE & CHROMINANCE BLOCK DIAGRAM


MAIN SIGNAL PATH IN REC MODE
MAIN SIGNAL PATH IN PLAYBACK MODE
FROM RF CONVERTER
PP4002 PS3902 11 11
TUNER VIDEO IN
JK3902 AV2 (DECODER/EXT)
RED
BLUE
GREEN
VIDEO
VIDEO
PB 12V
Q3910
JK3907 S-VIDEO OUT
S3901
S-VHS←→NORMAL
JK3901 AV1 (TV)
C/RED
BLUE
GREEN
Y/VIDEO
VIDEO
PB 12V
AV3 VIDEO IN
JK3906 AV3 S-VIDEO IN
IC3903
TU
V2
V3
V1
LOGIC
N. SW 5V
IC3902
LOGIC
Q3906 Q3907
AMP
IC3901
LOGIC
Q3904 Q3905
AMP
TO/FROM SYSTEM CONTROL
PP4003 PS3903 12 12 RGB
QR3904
PP4003 PS3903 14 14 INPUT SEL B
PP4003 PS3903 13 13 INPUT SEL A
PP4003 PS3903 16 16 AV2 OUT B
PP4003 PS3903 15 15 AV2 OUT A
PP4003 PS3903 17 17 TV
PP4003 PS3903 18 18 CANAL PB Ⓗ
PP4003 PS3903 19 19 AV1 PB Ⓗ
QR3902
QR3903
INPUT/OUTPUT PACK C. B. A.
J6501 AV3
S-VIDEO IN
VIDEO IN
C IN
Y IN
VIDEO IN
P6502 P3003 5 5
P6502 P3003 3 3
P6502 P3003 1 1
VR C. B. A.
PS3904 PP4004 18 18 VIDEO OUT
PS3902 PP4002 9 9 AV3 VIDEO IN
PS3904 PP4004 16 16 REAR VIDEO IN
PS3902 PP4002 13 13 VIDEO IN
PS3904 PP4004 11 11 REAR Y IN
PS3904 PP4004 13 13 REAR C IN
PS3902 PP4002 5 5 Y OUT
PS3904 PP4004 20 20 C OUT
IC3002
AV3 FRONT Ⓗ
IC6709-19 REC/PLAY 2.0Vp-p (20μsec. div.)
IC6709-16 REC/PLAY 2.0Vp-p (20μsec. div.)
IC6709-14 REC/PLAY 1.4Vp-p (20μsec. div.)
TO RF CONVERTER
VIDEO OUT
FROM SYSTEM CONTROL
OSD Ⓗ
IC6709
OSD Ⓗ
OSD Y
OSD C
IC6701
Y-OUT
C-OUT
GREEN
RED
BLUE
IC6707
OSD Y
OSD C
IC6704
RED
GREEN
BLUE
X6702
27MHz OSC
OSC OUT
OSC IN
CVBS
BLANK
PAL OUT Ⓛ
SCL
SDA
IC6706
OSD CONTROL
IC6702
EEPROM

TRUTH TABLE (IC3901, IC3903)

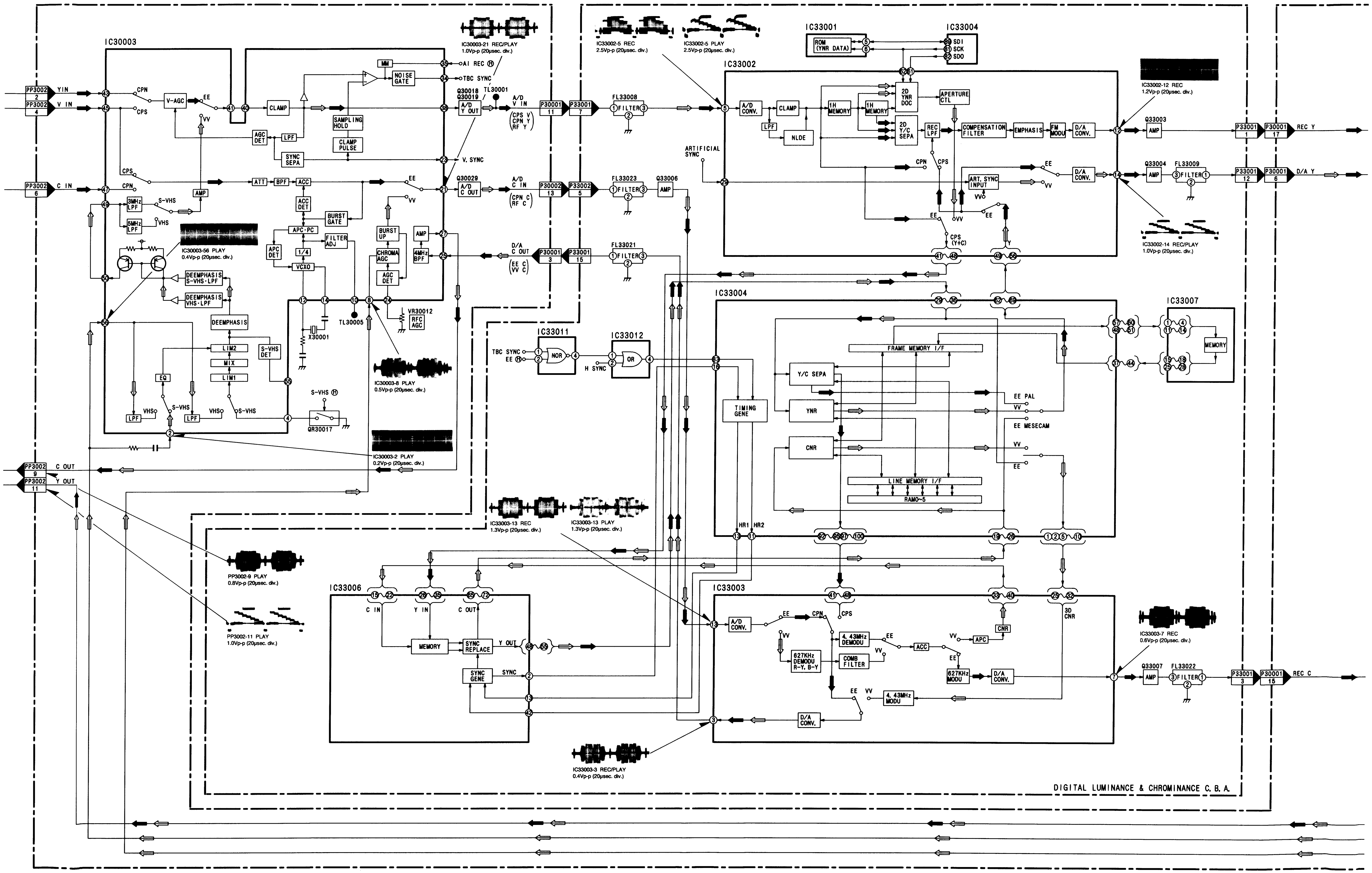
INPUT				OUTPUT	
				IC3901	IC3903
⑥	⑨	⑩	⑪	⑮	③
L	L	L	L	②	⑬
L	L	L	H	②	⑭
L	L	H	L	①	⑮
L	L	H	H	①	⑫
L	H	L	L	②	①
L	H	L	H	②	⑤
L	H	H	L	①	②
L	H	H	H	①	④
H	*	*	*	NONE	NONE

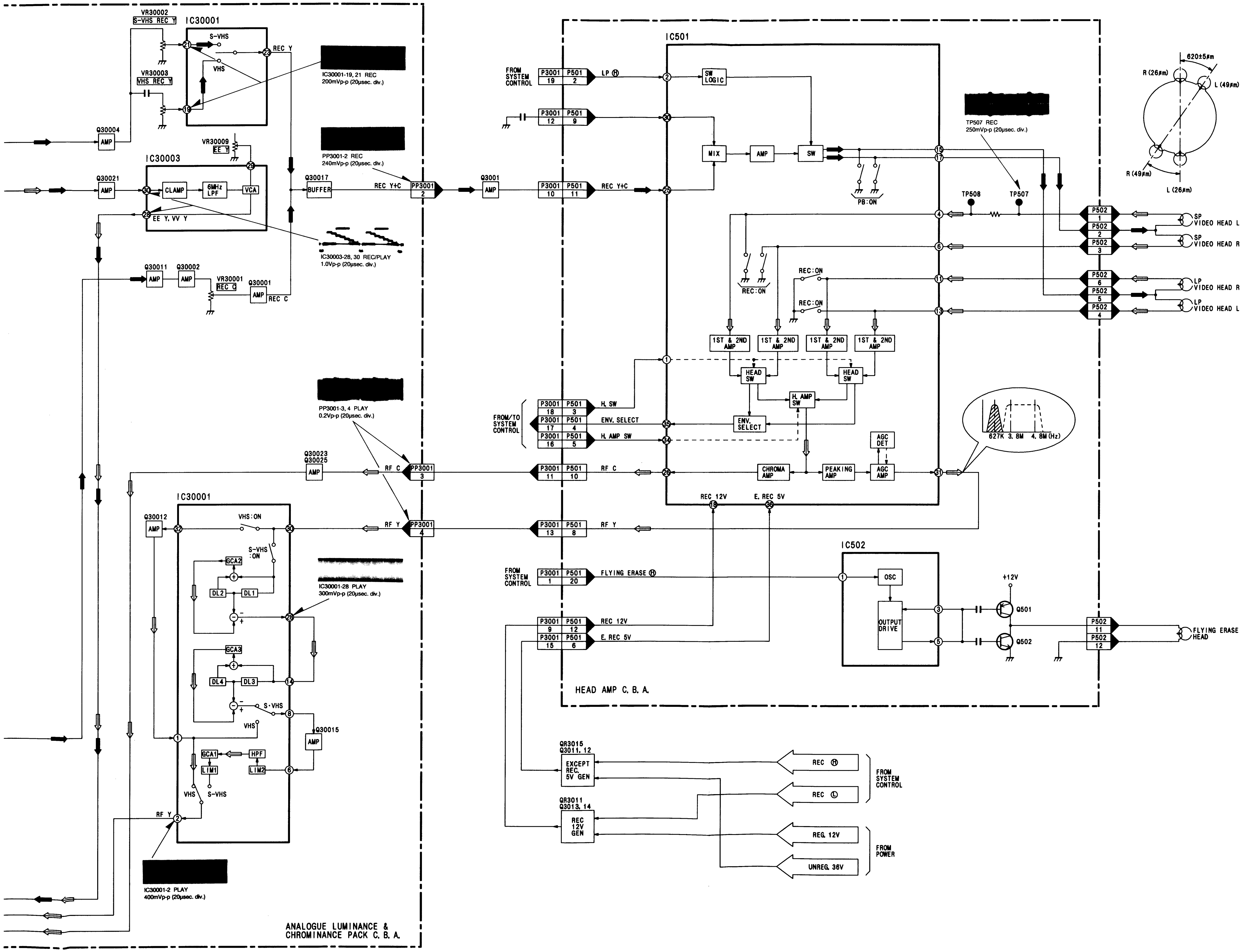
TRUTH TABLE (IC3902)

INPUT			OUTPUT
⑥	⑨	⑩	③
L	L	L	①
L	L	H	⑤
L	H	L	②
L	H	H	④
H	*	*	NONE

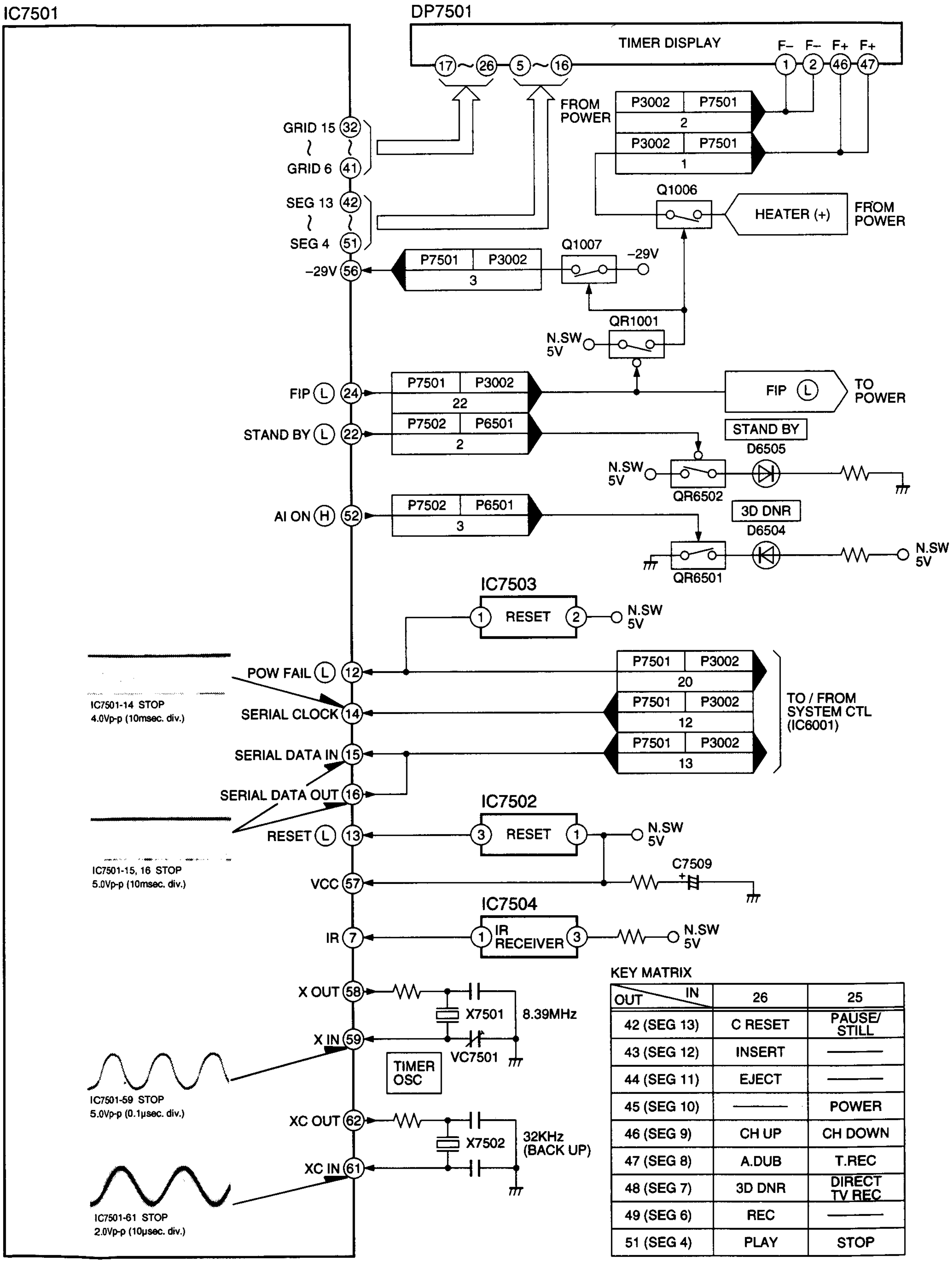
TRUTH TABLE (IC3002)

INPUT				OUTPUT		
⑥	⑨	⑩	⑪	⑮	④	⑭
L	L	L	L	②	⑤	⑫
L	H	H	H	①	③	⑬


IC30003
IC30003-21 REC/PLAY
1.0Vp-p (20μsec. div.)
PP3002 2 YIN
PP3002 4 V IN
PP3002 6 C IN
CPN
CPS
V-AGC
EE
VV
CLAMP
AGC DET
LPF
SYNC SEPA
SAMPLING HOLD
CLAMP PULSE
MM
NOISE GATE
AI REC Ⓗ
TBC SYNC
V. SYNC
Q30018
Q30019
A/D Y OUT
TL30001
A/D V IN
(CPS V CPN Y RF Y)
P30001 11
P33001 7
ATT
BPF
ACC
ACC DET
BURST GATE
APC·PC
APC DET
1/4
VCXO
FILTER ADJ
BURST UP
CHROMA AGC
AGC DET
AMP
4MHz BPF
Q30029
A/D C OUT
A/D C IN
(CPN C RF C)
P30002 13
P33002 5
D/A C OUT
(EE C VV C)
P30001 3
P33001 15
3MHz LPF
5MHz LPF
S-VHS
VHS
IC30003-56 PLAY
0.4Vp-p (20μsec. div.)
DEEMPHASIS S-VHS·LPF
DEEMPHASIS VHS·LPF
DEEMPHASIS
LIM2
MIX
LIM1
S-VHS DET
EQ
TL30005
X30001
VR30012
RFC AGC
IC30003-8 PLAY
0.5Vp-p (20μsec. div.)
S-VHS Ⓗ
QR30017
IC30003-2 PLAY
0.2Vp-p (20μsec. div.)
PP3002 9 C OUT
PP3002 11 Y OUT
PP3002-9 PLAY
0.8Vp-p (20μsec. div.)
PP3002-11 PLAY
1.0Vp-p (20μsec. div.)
IC33011
TBC SYNC
EE Ⓗ
NOR
IC33012
H SYNC
OR
IC33002-5 REC
2.5Vp-p (20μsec. div.)
IC33002-5 PLAY
2.5Vp-p (20μsec. div.)
IC33001
ROM (YNR DATA)
IC33004
SDI
SCK
SDO
IC33002
FL33008
FILTER
A/D CONV.
CLAMP
LPF
NLDE
1H MEMORY
2D YNR DOC
2D Y/C SEPA
APERTURE CTL
REC LPF
COMPENSATION FILTER
EMPHASIS
FM MODU
D/A CONV.
ARTIFICIAL SYNC
ART. SYNC INPUT
CPS (Y+C)
Y
FL33023
Q33006
AMP
FL33021
IC33002-12 REC
1.2Vp-p (20μsec. div.)
Q33003
P33001 1
P30001 17
REC Y
Q33004
FL33009
P33001 12
P30001 6
D/A Y
IC33002-14 REC/PLAY
1.0Vp-p (20μsec. div.)
IC33004
FRAME MEMORY I/F
Y/C SEPA
YNR
CNR
TIMING GENE
EE PAL
EE MESECAM
LINE MEMORY I/F
RAM0~5
HR1
HR2
IC33007
MEMORY
IC33003-13 REC
1.3Vp-p (20μsec. div.)
IC33003-13 PLAY
1.3Vp-p (20μsec. div.)
IC33006
C IN
Y IN
C OUT
MEMORY
SYNC REPLACE
Y OUT
SYNC GENE
SYNC
IC33003
3D CNR
4.43MHz DEMODU
627KHz DEMODU R-Y, B-Y
COMB FILTER
ACC
APC
CNR
627KHz MODU
4.43MHz MODU
IC33003-3 REC/PLAY
0.4Vp-p (20μsec. div.)
IC33003-7 REC
0.6Vp-p (20μsec. div.)
Q33007
FL33022
P33001 3
P30001 15
REC C
DIGITAL LUMINANCE & CHROMINANCE C. B. A.


VR30002
S-VHS REC Y
IC30001
S-VHS
VHS
REC Y
IC30001-19, 21 REC
200mVp-p (20μsec. div.)
VR30003
VHS REC Y
Q30004
AMP
VR30009
EE Y
IC30003
PP3001-2 REC
240mVp-p (20μsec. div.)
Q30021
AMP
CLAMP
6MHz LPF
VCA
Q30017
BUFFER
REC Y+C
PP3001
2
Q3001
AMP
EE Y, VV Y
IC30003-28, 30 REC/PLAY
1.0Vp-p (20μsec. div.)
Q30011
AMP
Q30002
AMP
VR30001
REC C
Q30001
AMP
REC C
PP3001-3, 4 PLAY
0.2Vp-p (20μsec. div.)
Q30023
Q30025
AMP
RF C
PP3001
3
IC30001
Q30012
AMP
VHS:ON
RF Y
PP3001
4
S-VHS :ON
GCA2
DL2
DL1
IC30001-28 PLAY
300mVp-p (20μsec. div.)
GCA3
DL4
DL3
S-VHS
VHS
Q30015
AMP
GCA1
HPF
LIM1
LIM2
VHS
S-VHS
RF Y
IC30001-2 PLAY
400mVp-p (20μsec. div.)
ANALOGUE LUMINANCE &
CHROMINANCE PACK C. B. A.
FROM SYSTEM CONTROL
P3001 19
P501 2
LP Ⓗ
P3001 12
P501 9
P3001 10
P501 11
REC Y+C
IC501
SW LOGIC
MIX
AMP
SW
PB:ON
TP507 REC
250mVp-p (20μsec. div.)
TP508
TP507
REC:ON
1ST & 2ND AMP
HEAD SW
H. AMP SW
ENV. SELECT
FROM/TO SYSTEM CONTROL
P3001 18
P501 3
H. SW
P3001 17
P501 4
ENV. SELECT
P3001 16
P501 5
H. AMP SW
AGC DET
CHROMA AMP
PEAKING AMP
AGC AMP
P3001 11
P501 10
RF C
P3001 13
P501 8
RF Y
REC 12V
E. REC 5V
627K
3. 8M
4. 8M (Hz)
P502 1
P502 2
P502 3
P502 6
P502 5
P502 4
SP VIDEO HEAD L
SP VIDEO HEAD R
LP VIDEO HEAD R
LP VIDEO HEAD L
620±5μm
R (26μm)
L (49μm)
R (49μm)
L (26μm)
IC502
FROM SYSTEM CONTROL
P3001 1
P501 20
FLYING ERASE Ⓗ
OSC
OUTPUT DRIVE
+12V
Q501
Q502
P3001 9
P501 12
REC 12V
P3001 15
P501 6
E. REC 5V
P502 11
P502 12
FLYING ERASE HEAD
HEAD AMP C. B. A.
QR3015
Q3011, 12
EXCEPT REC. 5V GEN
QR3011
Q3013, 14
REC 12V GEN
REC Ⓗ
REC Ⓛ
FROM SYSTEM CONTROL
REG. 12V
UNREG. 36V
FROM POWER

3-4. TIMER BLOCK DIAGRAM

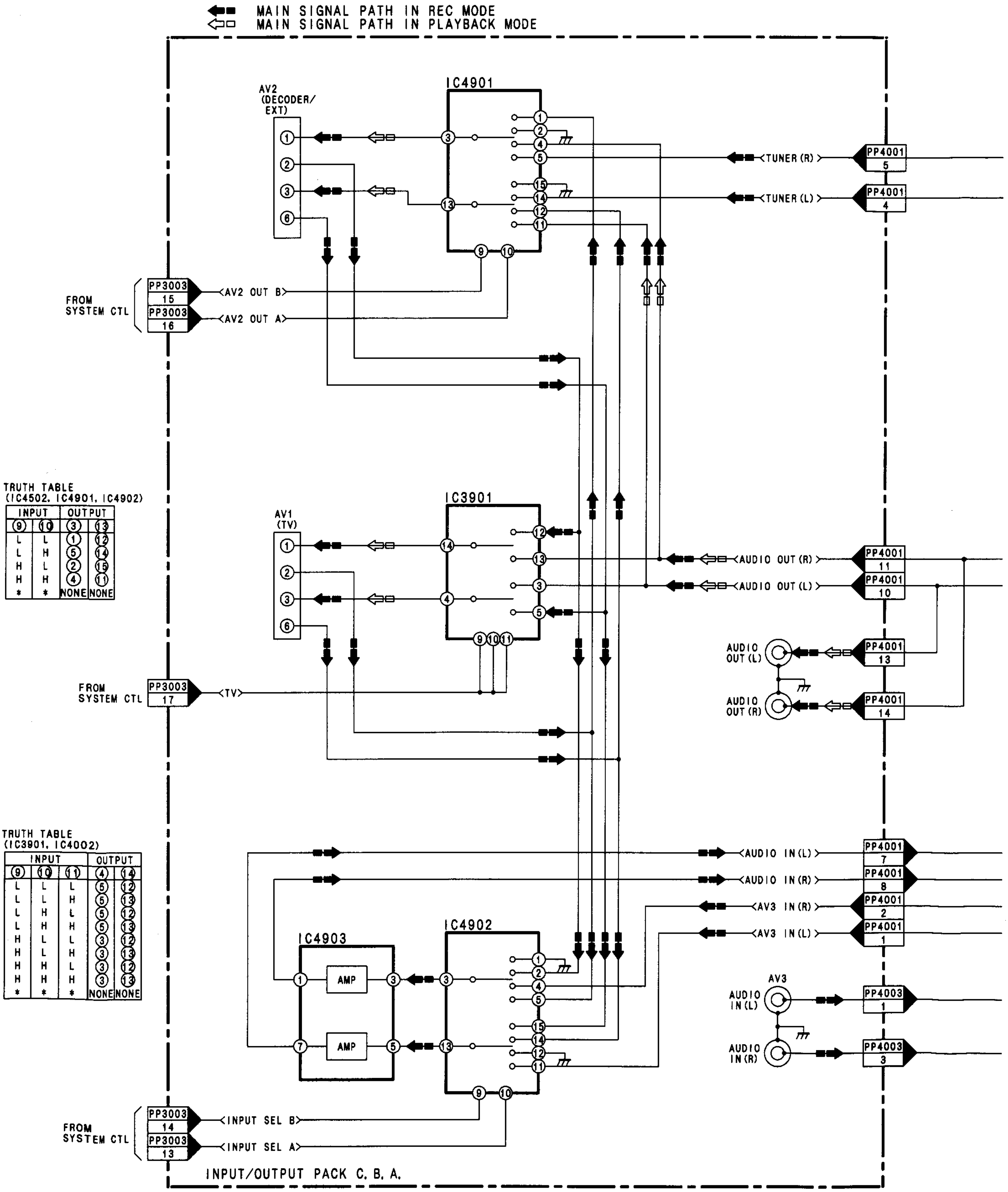


IC7501
DP7501
TIMER DISPLAY
F− F− F+ F+
① ② (46) (47)
(17)~(26) ⑤~(16)
FROM POWER
P3002 P7501 2
P3002 P7501 1
GRID 15 (32)
GRID 6 (41)
SEG 13 (42)
SEG 4 (51)
−29V (56)
P7501 P3002 3
Q1007
−29V
Q1006
HEATER (+)
FROM POWER
QR1001
N.SW 5V
FIP Ⓛ (24)
P7501 P3002 22
FIP Ⓛ
TO POWER
STAND BY Ⓛ (22)
P7502 P6501 2
STAND BY
D6505
N.SW 5V
QR6502
AI ON Ⓗ (52)
P7502 P6501 3
3D DNR
D6504
QR6501
N.SW 5V
IC7503
① RESET ②
N.SW 5V
POW FAIL Ⓛ (12)
P7501 P3002 20
SERIAL CLOCK (14)
P7501 P3002 12
SERIAL DATA IN (15)
P7501 P3002 13
TO / FROM SYSTEM CTL (IC6001)
SERIAL DATA OUT (16)
IC7501-14 STOP
4.0Vp-p (10msec. div.)
IC7502
RESET Ⓛ (13)
③ RESET ①
N.SW 5V
IC7501-15, 16 STOP
5.0Vp-p (10msec. div.)
VCC (57)
C7509
IC7504
IR ⑦
① IR RECEIVER ③
N.SW 5V
X OUT (58)
X7501
8.39MHz
X IN (59)
VC7501
TIMER OSC
IC7501-59 STOP
5.0Vp-p (0.1μsec. div.)
XC OUT (62)
X7502
32KHz (BACK UP)
XC IN (61)
IC7501-61 STOP
2.0Vp-p (10μsec. div.)
KEY MATRIX

KEY MATRIX

OUT \ IN	26	25
42 (SEG 13)	C RESET	PAUSE/ STILL
43 (SEG 12)	INSERT	———
44 (SEG 11)	EJECT	———
45 (SEG 10)	———	POWER
46 (SEG 9)	CH UP	CH DOWN
47 (SEG 8)	A.DUB	T.REC
48 (SEG 7)	3D DNR	DIRECT TV REC
49 (SEG 6)	REC	———
51 (SEG 4)	PLAY	STOP

3-5. Hi-Fi AUDIO BLOCK DIAGRAM

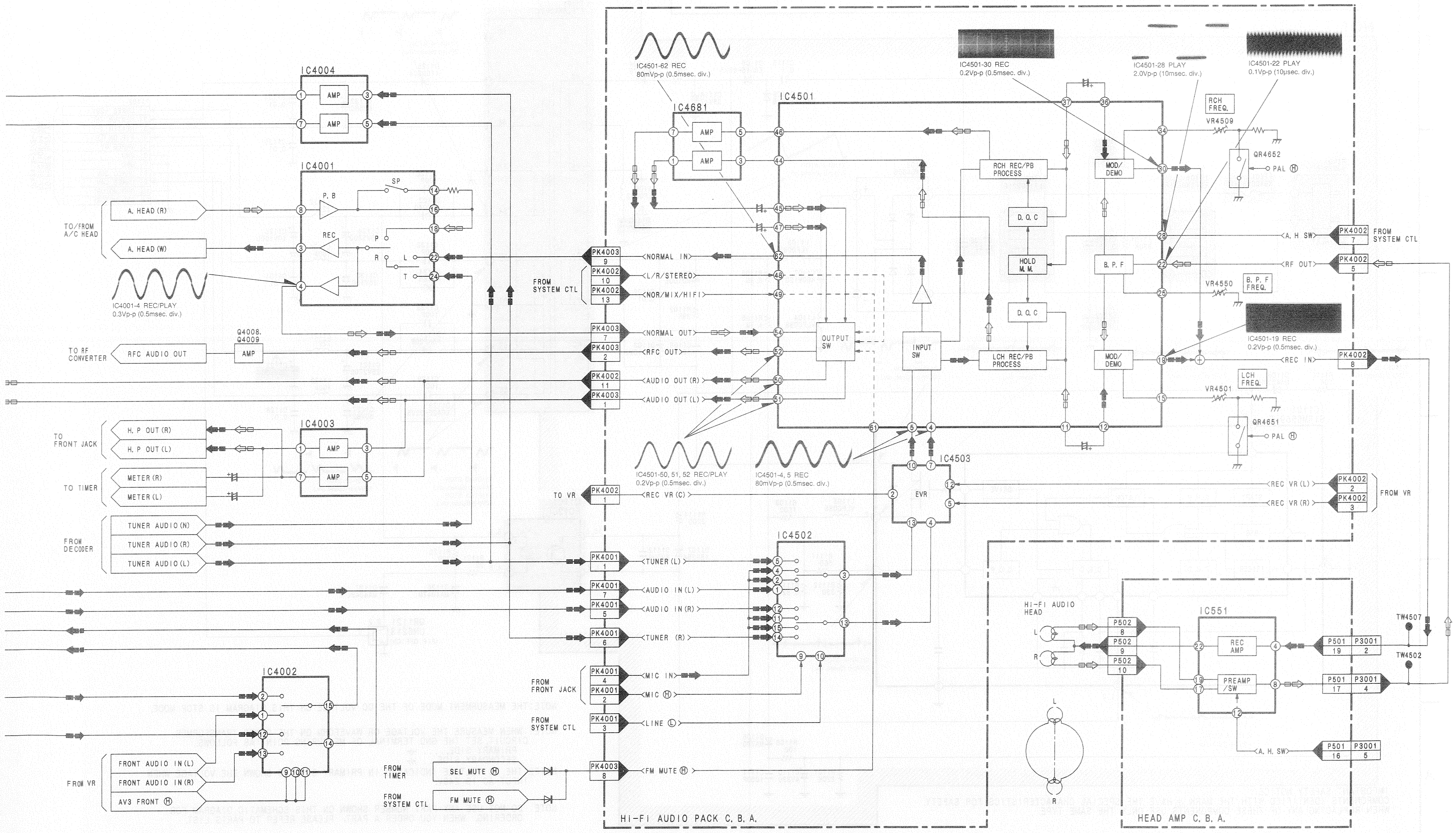

MAIN SIGNAL PATH IN REC MODE
MAIN SIGNAL PATH IN PLAYBACK MODE
AV2 (DECODER/ EXT)
IC4901
TUNER (R)
TUNER (L)
PP4001 5
PP4001 4
FROM SYSTEM CTL
PP3003 15
PP3003 16
AV2 OUT B
AV2 OUT A
AV1 (TV)
IC3901
AUDIO OUT (R)
AUDIO OUT (L)
PP4001 11
PP4001 10
AUDIO OUT (L)
AUDIO OUT (R)
PP4001 13
PP4001 14
PP3003 17
TV
AUDIO IN (L)
AUDIO IN (R)
AV3 IN (R)
AV3 IN (L)
PP4001 7
PP4001 8
PP4001 2
PP4001 1
IC4903
AMP
AMP
IC4902
AV3
AUDIO IN (L)
AUDIO IN (R)
PP4003 1
PP4003 3
PP3003 14
PP3003 13
INPUT SEL B
INPUT SEL A
INPUT/OUTPUT PACK C, B, A.

TRUTH TABLE
(IC4502, IC4901, IC4902)

INPUT		OUTPUT	
⑨	⑩	③	⑬
L	L	①	⑫
L	H	⑤	⑭
H	L	②	⑮
H	H	④	⑪
*	*	NONE	NONE

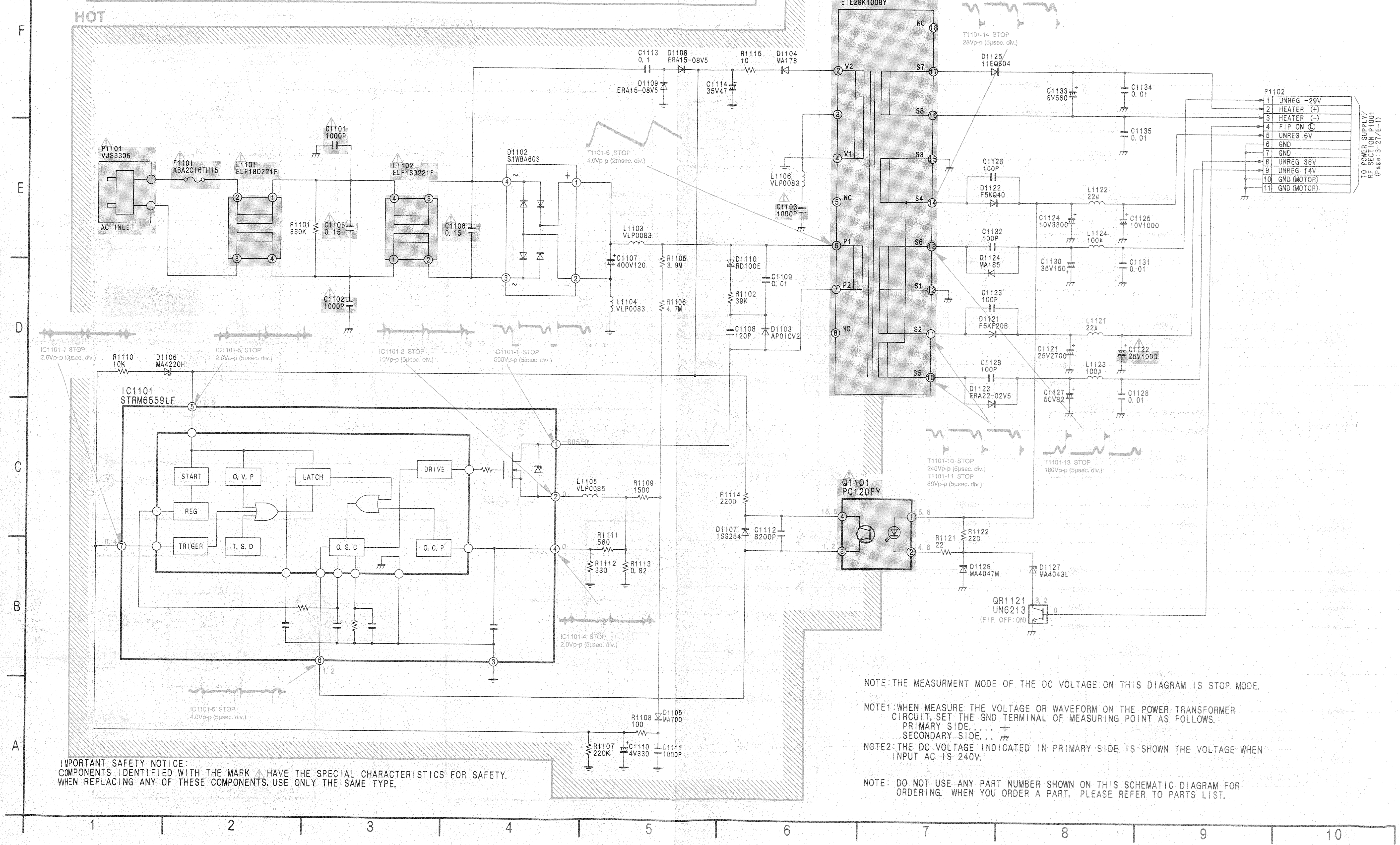
TRUTH TABLE
(IC3901, IC4002)

INPUT			OUTPUT	
⑨	⑩	⑪	④	⑭
L	L	L	⑤	⑫
L	L	H	⑤	⑬
L	H	L	⑤	⑫
L	H	H	⑤	⑬
H	L	L	③	⑫
H	L	H	③	⑬
H	H	L	③	⑫
H	H	H	③	⑬
*	*	*	NONE	NONE


IC4004
AMP
AMP
IC4001
SP
P. B
REC
P
R
L
T
A. HEAD (R)
A. HEAD (W)
TO/FROM A/C HEAD
IC4001-4 REC/PLAY
0.3Vp-p (0.5msec. div.)
Q4008, Q4009
AMP
TO RF CONVERTER
RFC AUDIO OUT
IC4003
H. P OUT (R)
H. P OUT (L)
TO FRONT JACK
METER (R)
METER (L)
TO TIMER
TUNER AUDIO (N)
TUNER AUDIO (R)
TUNER AUDIO (L)
FROM DECODER
IC4002
FRONT AUDIO IN (L)
FRONT AUDIO IN (R)
AV3 FRONT Ⓗ
FROM VR
FROM TIMER
SEL MUTE Ⓗ
FROM SYSTEM CTL
FM MUTE Ⓗ
FROM SYSTEM CTL
PK4003 9 NORMAL IN
PK4002 10 L/R/STEREO
PK4002 13 NOR/MIX/HIFI
PK4003 7 NORMAL OUT
PK4003 2 RFC OUT
PK4002 11 AUDIO OUT (R)
PK4003 1 AUDIO OUT (L)
TO VR
PK4002 1 REC VR (C)
PK4001 1 TUNER (L)
PK4001 7 AUDIO IN (L)
PK4001 5 AUDIO IN (R)
PK4001 6 TUNER (R)
FROM FRONT JACK
PK4001 4 MIC IN
PK4001 2 MIC Ⓗ
FROM SYSTEM CTL
PK4001 3 LINE Ⓛ
PK4003 8 FM MUTE Ⓗ
IC4501-62 REC
80mVp-p (0.5msec. div.)
IC4681
AMP
AMP
IC4501
IC4501-30 REC
0.2Vp-p (0.5msec. div.)
IC4501-28 PLAY
2.0Vp-p (10msec. div.)
IC4501-22 PLAY
0.1Vp-p (10μsec. div.)
RCH FREQ.
VR4509
QR4652
PAL Ⓗ
RCH REC/PB PROCESS
MOD/DEMO
D. O. C
HOLD M. M.
B. P. F
D. O. C
LCH REC/PB PROCESS
MOD/DEMO
OUTPUT SW
INPUT SW
A. H SW
PK4002 7
FROM SYSTEM CTL
RF OUT
PK4002 5
VR4550
B. P. F FREQ.
IC4501-19 REC
0.2Vp-p (0.5msec. div.)
REC IN
PK4002 8
LCH FREQ.
VR4501
QR4651
PAL Ⓗ
IC4501-50, 51, 52 REC/PLAY
0.2Vp-p (0.5msec. div.)
IC4501-4, 5 REC
80mVp-p (0.5msec. div.)
IC4503
EVR
REC VR (L)
PK4002 2
REC VR (R)
PK4002 3
FROM VR
IC4502
Hi-Fi AUDIO HEAD
L
R
P502 8
P502 9
P502 10
IC551
REC AMP
PREAMP /SW
A. H. SW
TW4507
TW4502
P501 19 P3001 2
P501 17 P3001 4
P501 16 P3001 5
L
R
Hi-Fi AUDIO PACK C. B. A.
HEAD AMP C. B. A.

3-6. POWER SCHEMATIC DIAGRAM

CAUTION THE RED MARK INDICATES THE PRIMARY CIRCUIT TO DISTINGUISH THE PRIMARY FROM THE SECONDARY CIRCUIT.
PAY ATTENTION NOT TO RECEIVE AN ELECTRIC SHOCK DURING REPAIR AND SERVICE OF THE PRODUCTS.


HOT
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
10
P1101 VJS3306
AC INLET
F1101 XBA2C16TH15
L1101 ELF18D221F
C1101 1000P
R1101 330K
C1105 0.15
L1102 ELF18D221F
C1106 0.15
C1102 1000P
D1102 S1WBA60S
C1113 0.1
D1108 ERA15-08V5
D1109 ERA15-08V5
C1114 35V47
R1115 10
D1104 MA178
T1101-6 STOP 4.0Vp-p (2msec. div.)
L1103 VLP0083
C1107 400V120
R1105 3.9M
L1104 VLP0083
R1106 4.7M
D1110 RD100E
C1109 0.01
R1102 39K
C1108 120P
D1103 AP01CV2
L1106 VLP0083
C1103 1000P
T1101 ETE28K100BY
NC 18
V2 2
S7 17
3
S8 16
V1 4
S3 15
NC 5
S4 14
P1 6
S6 13
P2 7
S1 12
NC 8
S2 11
S5 10
T1101-14 STOP 28Vp-p (5μsec. div.)
D1125 11EQS04
C1133 6V560
C1134 0.01
C1135 0.01
C1126 100P
D1122 F5KQ40
L1122 22μ
C1124 10V3300
C1125 10V1000
L1124 100μ
C1132 100P
D1124 MA185
C1130 35V150
C1131 0.01
C1123 100P
D1121 F5KF20B
L1121 22μ
C1121 25V2700
C1122 25V1000
L1123 100μ
C1129 100P
D1123 ERA22-02V5
C1127 50V82
C1128 0.01
P1102
1 UNREG -29V
2 HEATER (+)
3 HEATER (-)
4 FIP ON Ⓛ
5 UNREG 6V
6 GND
7 GND
8 UNREG 36V
9 UNREG 14V
10 GND (MOTOR)
11 GND (MOTOR)
TO POWER SUPPLY/ RF SECTION P1001 (Page:3-27/E-1)
IC1101-7 STOP 2.0Vp-p (5μsec. div.)
IC1101-5 STOP 2.0Vp-p (5μsec. div.)
IC1101-2 STOP 10Vp-p (5μsec. div.)
IC1101-1 STOP 500Vp-p (5μsec. div.)
R1110 10K
D1106 MA4220H
IC1101 STRM6559LF
17.5
START
O.V.P
LATCH
DRIVE
REG
TRIGER
T.S.D
O.S.C
O.C.P
605.0
0.4
0
1.2
L1105 VLP0085
R1109 1500
R1111 560
R1112 330
R1113 0.82
IC1101-4 STOP 2.0Vp-p (5μsec. div.)
IC1101-6 STOP 4.0Vp-p (5μsec. div.)
R1114 2200
D1107 1SS254
C1112 8200P
Q1101 PC120FY
15.5
1.2
5.6
4.6
R1121 22
R1122 220
D1126 MA4047M
D1127 MA4043L
QR1121 UN6213
(FIP OFF:ON)
3.2
0
T1101-10 STOP 240Vp-p (5μsec. div.)
T1101-11 STOP 80Vp-p (5μsec. div.)
T1101-13 STOP 180Vp-p (5μsec. div.)
R1108 100
D1105 MA700
R1107 220K
C1110 4V330
C1111 1000P

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED WITH THE MARK ⚠ HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SAME TYPE.

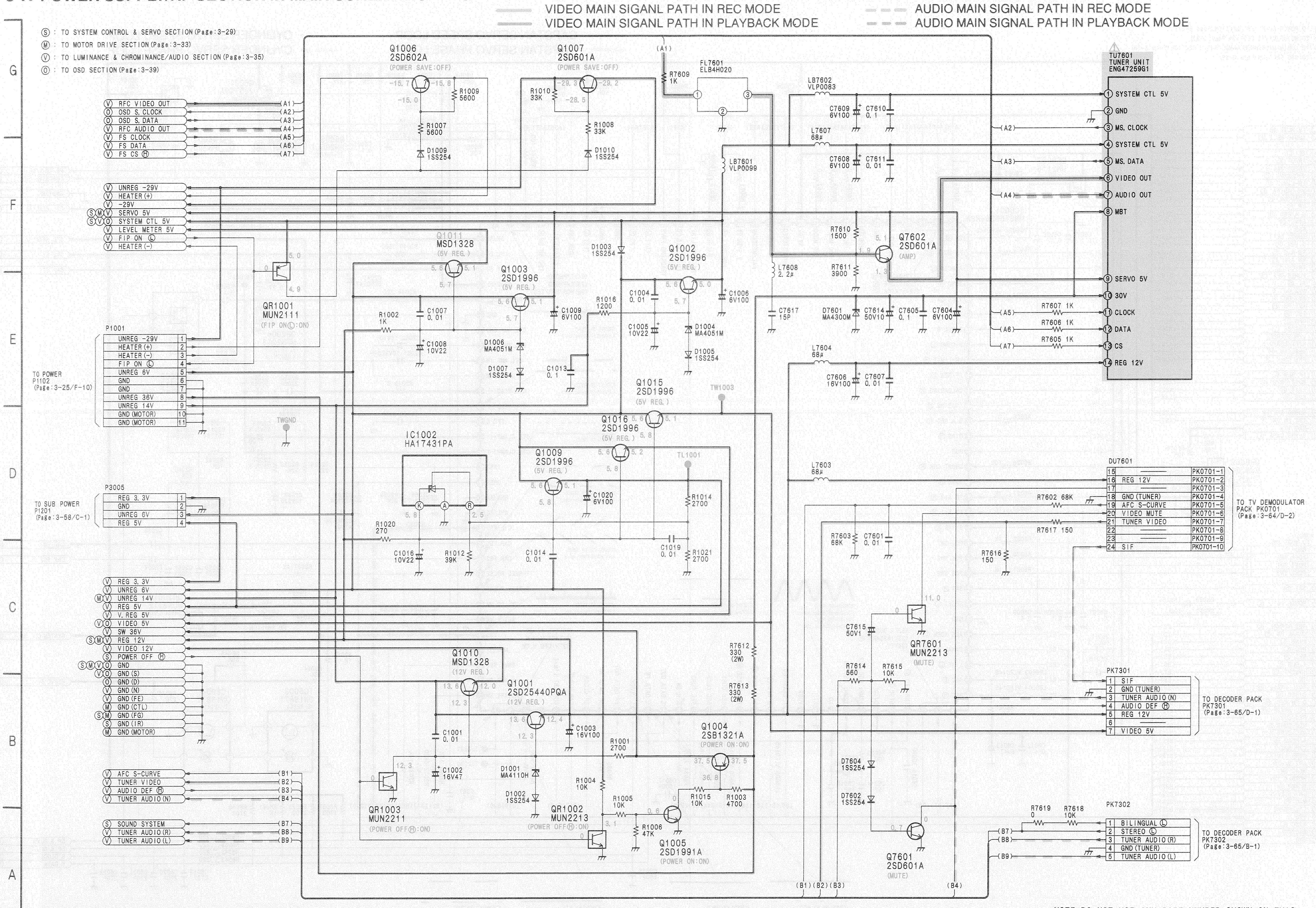
NOTE: THE MEASURMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE.

NOTE1: WHEN MEASURE THE VOLTAGE OR WAVEFORM ON THE POWER TRANSFORMER CIRCUIT, SET THE GND TERMINAL OF MEASURING POINT AS FOLLOWS.
PRIMARY SIDE..... ⏚
SECONDARY SIDE... ⏚

NOTE2: THE DC VOLTAGE INDICATED IN PRIMARY SIDE IS SHOWN THE VOLTAGE WHEN INPUT AC IS 240V.

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

3-7. POWER SUPPLY/RF SECTION IN MAIN SCHEMATIC DIAGRAM


VIDEO MAIN SIGANL PATH IN REC MODE
VIDEO MAIN SIGANL PATH IN PLAYBACK MODE
AUDIO MAIN SIGNAL PATH IN REC MODE
AUDIO MAIN SIGNAL PATH IN PLAYBACK MODE
Ⓢ : TO SYSTEM CONTROL & SERVO SECTION(Page:3-29)
Ⓜ : TO MOTOR DRIVE SECTION(Page:3-33)
Ⓥ : TO LUMINANCE & CHROMINANCE/AUDIO SECTION(Page:3-35)
Ⓞ : TO OSD SECTION(Page:3-39)
G
F
E
D
C
B
A
RFC VIDEO OUT
OSD S. CLOCK
OSD S. DATA
RFC AUDIO OUT
FS CLOCK
FS DATA
FS CS Ⓗ
UNREG -29V
HEATER (+)
-29V
SERVO 5V
SYSTEM CTL 5V
LEVEL METER 5V
FIP ON Ⓛ
HEATER (-)
P1001
TO POWER P1102 (Page:3-25/F-10)
UNREG -29V
HEATER (+)
HEATER (-)
FIP ON Ⓛ
UNREG 6V
GND
GND
UNREG 36V
UNREG 14V
GND (MOTOR)
GND (MOTOR)
P3005
TO SUB POWER P1201 (Page:3-58/C-1)
REG 3.3V
GND
UNREG 6V
REG 5V
REG 3.3V
UNREG 6V
UNREG 14V
REG 5V
V.REG 5V
VIDEO 5V
SW 36V
REG 12V
VIDEO 12V
POWER OFF Ⓗ
GND
GND (S)
GND (D)
GND (N)
GND (FE)
GND (CTL)
GND (FG)
GND (IR)
GND (MOTOR)
AFC S-CURVE
TUNER VIDEO
AUDIO DEF Ⓗ
TUNER AUDIO (N)
SOUND SYSTEM
TUNER AUDIO (R)
TUNER AUDIO (L)
Q1006 2SD602A (POWER SAVE:OFF)
Q1007 2SD601A (POWER SAVE:OFF)
R1009 5600
R1007 5600
D1009 1SS254
R1010 33K
R1008 33K
D1010 1SS254
R7609 1K
FL7601 ELB4H020
LB7602 VLP0083
LB7601 VLP0099
C7609 6V100
C7610 0.1
L7607 68μ
C7608 6V100
C7611 0.01
R7610 1500
Q7602 2SD601A (AMP)
L7608 2.2μ
R7611 3900
C7617 15P
D7601 MA4300M
C7614 50V10
C7605 0.1
C7604 6V100
R7607 1K
R7606 1K
R7605 1K
L7604 68μ
C7606 16V100
C7607 0.01
TU7601 TUNER UNIT ENG47259G1
SYSTEM CTL 5V
GND
MS. CLOCK
SYSTEM CTL 5V
MS. DATA
VIDEO OUT
AUDIO OUT
MBT
SERVO 5V
30V
CLOCK
DATA
CS
REG 12V
QR1001 MUN2111 (FIP ON Ⓛ:ON)
Q1011 MSD1328 (5V REG.)
Q1003 2SD1996 (5V REG.)
D1003 1SS254
Q1002 2SD1996 (5V REG.)
R1002 1K
C1007 0.01
C1008 10V22
D1006 MA4051M
D1007 1SS254
C1009 6V100
C1013 0.1
R1016 1200
C1004 0.01
C1005 10V22
D1004 MA4051M
D1005 1SS254
C1006 6V100
Q1015 2SD1996 (5V REG.)
TW1003
TWGND
Q1016 2SD1996 (5V REG.)
IC1002 HA17431PA
Q1009 2SD1996 (5V REG.)
TL1001
C1020 6V100
R1014 2700
R1020 270
C1016 10V22
R1012 39K
C1014 0.01
C1019 0.01
R1021 2700
L7603 68μ
DU7601
REG 12V
GND (TUNER)
AFC S-CURVE
VIDEO MUTE
TUNER VIDEO
SIF
PK0701-1
PK0701-10
TO TV DEMODULATOR PACK PK0701 (Page:3-64/D-2)
R7602 68K
R7617 150
R7603 68K
C7601 0.01
R7616 150
QR7601 MUN2213 (MUTE)
C7615 50V1
R7612 330 (2W)
R7613 330 (2W)
R7614 560
R7615 10K
PK7301
SIF
GND (TUNER)
TUNER AUDIO (N)
AUDIO DEF Ⓗ
REG 12V
VIDEO 5V
TO DECODER PACK PK7301 (Page:3-65/D-1)
Q1010 MSD1328 (12V REG.)
Q1001 2SD25440PQA (12V REG.)
C1003 16V100
C1001 0.01
C1002 16V47
D1001 MA4110H
D1002 1SS254
R1001 2700
Q1004 2SB1321A (POWER ON:ON)
R1004 10K
R1005 10K
R1015 10K
R1003 4700
R1006 47K
QR1003 MUN2211 (POWER OFF Ⓗ:ON)
QR1002 MUN2213 (POWER OFF Ⓗ:ON)
Q1005 2SD1991A (POWER ON:ON)
D7604 1SS254
D7602 1SS254
R7619 0
R7618 10K
PK7302
BILINGUAL Ⓛ
STEREO Ⓛ
TUNER AUDIO (R)
GND (TUNER)
TUNER AUDIO (L)
TO DECODER PACK PK7302 (Page:3-65/B-1)
Q7601 2SD601A (MUTE)

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED WITH THE MARK ⚠ HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SAME TYPE.

NOTE:THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE.

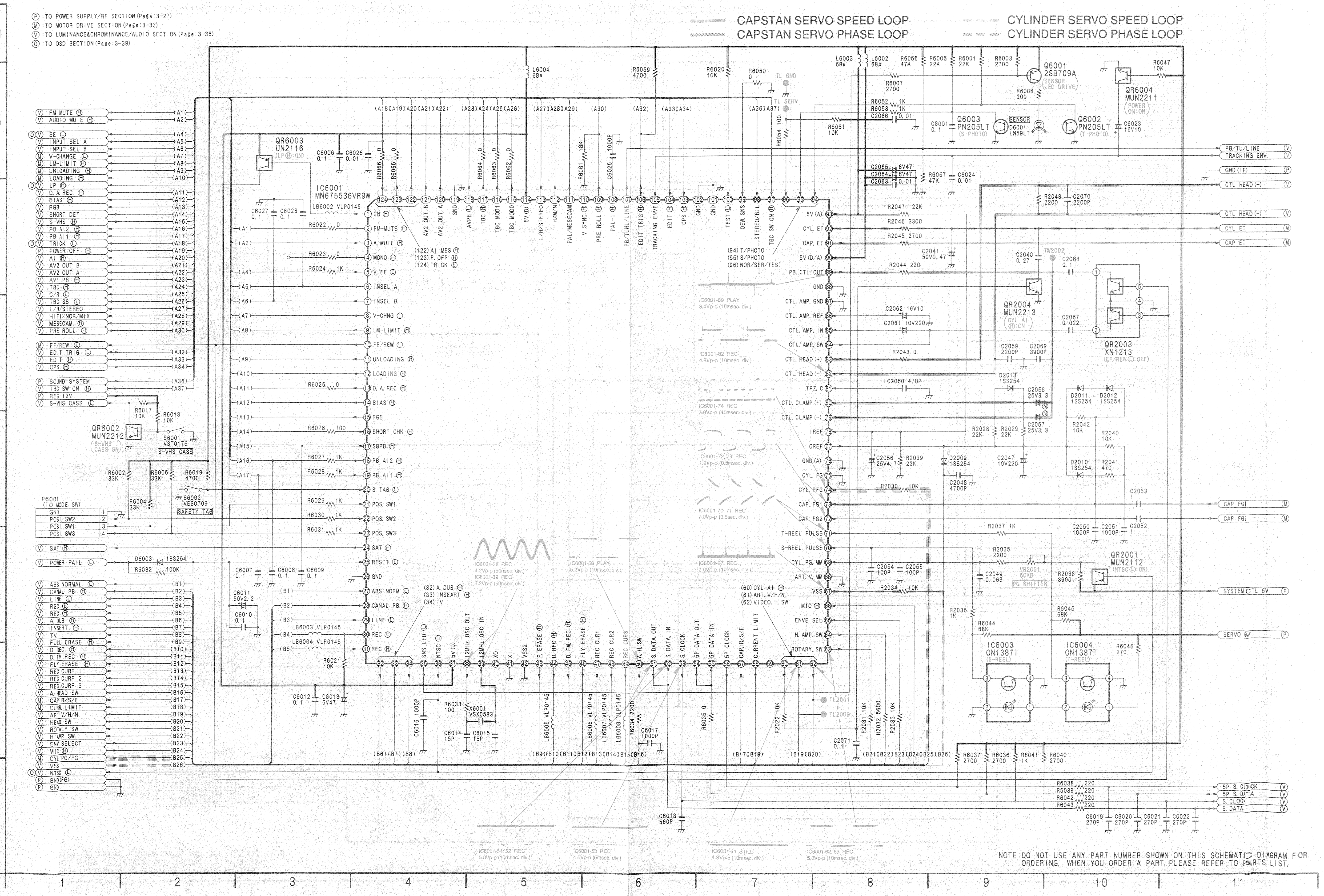
NOTE:DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

1 2 3 4 5 6 7 8 9 10

3-8. SYSTEM CONTROL & SERVO SECTION IN MAIN SCHEMATIC DIAGRAM

Ⓟ:TO POWER SUPPLY/RF SECTION(Page:3-27)
Ⓜ:TO MOTOR DRIVE SECTION(Page:3-33)
Ⓥ:TO LUMINANCE&CHROMINANCE/AUDIO SECTION(Page:3-35)
Ⓞ:TO OSD SECTION(Page:3-39)

CAPSTAN SERVO SPEED LOOP
CAPSTAN SERVO PHASE LOOP
CYLINDER SERVO SPEED LOOP
CYLINDER SERVO PHASE LOOP



IC6001
MN675536VR9W
QR6003
UN2116
QR6002
MUN2212
QR6004
MUN2211
Q6001
2SB709A
Q6003
PN205LT
Q6002
PN205LT
D6001
LN59LT
QR2004
MUN2213
QR2003
XN1213
QR2001
MUN2112
IC6003
ON1387T
IC6004
ON1387T
S6001
VST0176
S-VHS CASS
S6002
VES0709
SAFETY TAB
P6001
(TO MODE SW)
X6001
VSX0583
VR2001
50KB
PG SHIFTER
FM MUTE
AUDIO MUTE
EE
INPUT SEL A
INPUT SEL B
V-CHANGE
LM-LIMIT
UNLOADING
LOADING
LP
D. A. REC
BIAS
RGB
SHORT DET
S-VHS
PB AI2
PB AI1
TRICK
POWER OFF
AI
AV2 OUT B
AV2 OUT A
AV1 PB
TBC
C/R
TBC SS
L/R/STEREO
HIFI/NOR/MIX
MESECAM
PRE ROLL
FF/REW
EDIT TRIG
EDIT
CPS
SOUND SYSTEM
TBC SW ON
REG 12V
S-VHS CASS
SAT
POWER FAIL
ABS NORMAL
CANAL PB
LINE
REC
A. DUB
INSERT
TV
FULL ERASE
D. REC
D. FM REC
FLY ERASE
REC CURR 1
REC CURR 2
REC CURR 3
A. HEAD SW
CAP R/S/F
CURR. LIMIT
ART V/H/N
HEAD SW
ROTARY SW
H. AMP SW
ENV. SELECT
MIC
CYL PG/FG
VSS
NTSC
GND(FG)
GND
PB/TU/LINE
TRACKING ENV.
GND (IR)
CTL HEAD (+)
CTL HEAD (-)
CYL ET
CAP ET
CAP FG1
CAP FG2
SYSTEM CTL 5V
SERVO 5V
5P S. CLOCK
5P S. DATA
S. CLOCK
S. DATA
TL GND
TL SERV
TL2001
TL2009
TW2002

NOTE:DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

SYSTEM CONTROL & SERVO ICs DC VOLTAGE CHART (S-VHS: SP MODE)

REF. NO.	IC6001																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
STOP	4.9	0	0	4.9	0	4.9	0.4	4.9	0	4.8	0	0	0	0	4.9	1.1	4.9	0	0	0
PLAY	4.9	0	0	4.9	4.8	4.9	0.4	4.9	0	4.8	0	0	0	0	4.9	0.8	0	0	0	0
REC	4.9	0	0	4.9	0	4.9	0.4	4.8	0	4.8	0	0	0	4.9	4.9	4.6	4.9	0	0	0
F.F	4.9	0	0	4.9	0	4.9	0.4	0	0	0	0	0	0	0	5.0	1.0	4.9	0	0	0
REW	4.9	0	0	4.9	0	4.9	0.4	0	0	0	0	0	0	0	4.9	1.0	4.9	0	0	0

REF. NO.	IC6001																			
MODE	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
STOP	5.0	0	5.0	0	4.9	0	4.9	0	0	4.8	0	0	0	4.9	4.9	4.9	4.9	2.4	2.6	4.6
PLAY	0	0	0	0	4.9	0	0	0	0	4.8	0	0	0	4.9	0.1	0	4.9	2.4	2.6	4.5
REC	0	0	0	0	4.9	0	4.9	0	0	0	4.8	0	0	0	0.1	4.8	4.9	2.5	2.6	4.5
F.F	0	0	5.0	0	5.0	0	4.9	0	0	4.8	0	0	0	4.9	0.1	4.9	4.9	2.5	2.6	4.5
REW	0	0	5.0	0	4.9	0	4.9	0	0	4.8	0	0	0	4.9	0.1	4.9	4.9	2.5	2.6	4.5

REF. NO.	IC6001																			
MODE	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
STOP	0	0	0	0	0	0	0	4.9	0	0	4.6	4.6	4.5	4.8	4.8	4.8	2.0	0	4.9	0
PLAY	0	0	0	0	0	0	0	4.9	0	2.4	4.6	4.6	4.5	4.8	4.8	4.8	0	4.9	4.9	0
REC	0	0	4.9	4.9	4.8	0	0	4.9	0	0	0	4.6	4.4	4.8	4.8	4.8	0	0	4.9	0
F.F	0	0	0	0	0	0	0	4.9	0	0	4.6	4.6	4.5	4.8	4.8	4.8	0	4.9	4.9	0
REW	0	0	0	0	0	0	0	4.9	0	0	4.6	4.6	4.5	4.8	4.8	4.8	0	4.9	4.9	0

REF. NO.	IC6001																			
MODE	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
STOP	0	0	0	0	0.3	0	2.4	0	5.0	0	5.0	2.4	2.4	5.0	0	0	2.4	2.4	2.3	2.5
PLAY	0	0	2.4	0	0	0	2.4	0	3.1	4.9	3.1	2.4	2.4	1.0	0	0	2.4	2.4	2.5	2.4
REC	0	2.4	2.4	0	4.3	0	2.4	0	3.1	4.9	4.1	2.3	2.4	1.0	0	0	2.4	2.4	2.3	2.5
F.F	0	2.4	0	0	2.3	0	2.4	0	3.1	2.3	0	2.4	2.4	1.0	0	0	2.4	2.4	2.3	2.5
REW	0	2.4	0	0	2.4	0	2.4	0	3.1	2.3	0	2.4	2.4	1.0	0	0	2.4	2.4	2.7	2.2

REF. NO.	IC6001																			
MODE	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
STOP	4.9	0	0	0	2.4	2.4	0	0	2.4	5.0	1.4	4.7	4.9	4.8	5.0	4.9	5.1	5.1	0	5.0
PLAY	4.9	0	0	0	2.4	2.4	0	0	2.4	5.0	2.6	2.3	4.9	4.8	5.0	4.9	5.1	5.1	0	5.0
REC	4.8	2.2	2.7	0	2.4	2.4	0	0	2.4	4.9	2.6	2.3	4.9	4.8	5.0	4.9	5.0	5.1	0	5.0
F.F	4.9	0	0	0	2.4	2.4	0	0	2.4	5.0	2.5	2.4	4.9	4.8	5.0	4.9	5.0	5.1	0	5.0
REW	4.9	0	0	0	2.4	2.4	0	0	2.4	5.0	2.5	2.4	4.9	4.8	5.0	4.9	5.0	5.1	0	5.0

REF. NO.	IC6001																			
MODE	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120
STOP	0	0	4.4	4.5	1.6	5.0	0	4.9	0	4.9	0	4.9	0	4.9	4.9	4.9	0	0	0	4.9
PLAY	0	0	4.6	4.5	2.9	5.0	4.9	4.9	0	4.9	0	4.9	0	4.9	4.9	4.9	4.9	4.8	0	4.9
REC	0	0	4.4	4.5	1.7	5.0	0	4.9	0	4.9	0	4.9	0	4.9	4.9	4.9	0	0	0	0
F.F	0	0	0	4.5	2.3	5.0	0	4.9	0	4.9	0	4.9	0	4.9	4.9	4.9	0	0	0	4.9
REW	0	0	0	4.5	2.4	5.0	0	4.9	0	4.9	0	4.9	0	4.9	4.9	4.9	0	0	0	4.9

REF. NO.	IC6001																			
MODE	121	122	123	124																
STOP	4.9	0	0	4.9																
PLAY	4.9	0	0	4.9																
REC	4.9	0	0	4.9																
F.F	4.9	0	0	4.9																
REW	4.9	0	0	4.9																

REF. NO.	IC6003										IC6004									
MODE	1	2	3	4							1	2	3	4						
STOP	1.1	0	0	0							2.3	1.1	5.0	0						
PLAY	1.1	0	4.9	0							2.3	1.1	4.5	0						
REC	1.1	0	4.9	0							2.3	1.1	4.1	0						
F.F	1.1	0	2.3	0							2.3	1.1	2.2	0						
REW	1.1	0	2.3	0							2.3	1.1	2.2	0						

SYSTEM CONTROL & SERVO TRs DC VOLTAGE CHART (S-VHS: SP MODE)

REF. NO.	Q6001			Q6002			Q6003											
MODE	E	C	B	E	C		E	C										
STOP	5.0	0	5.0	4.8	0		5.0	0										
PLAY	5.0	5.0	4.2	4.8	0		5.0	0										
REC	5.0	4.9	4.2	4.8	0		5.0	0										
F.F	5.0	4.9	4.2	4.8	0		5.0	0										
REW	5.0	4.9	4.2	4.8	0		5.0	0										
REF. NO.	QR2001			QR2002			QR2003			QR2004								
MODE	E	C	B	E	C	B	E	C	B	E	C	B						
STOP	5.0	5.0	4.9	0	0	4.8	0	0	4.8	0	0	0						
PLAY	5.0	5.0	0	0	0	4.8	0	0	4.8	0	0	0						
REC	5.0	4.7	4.8	0	0	4.8	0	0	4.8	0	0	0						
F.F	5.0	4.7	4.8	0	0	0	0	1.4	0	0	0	0						
REW	5.0	4.7	4.8	0	0	0	0	1.4	0	0	0	0						
REF. NO.	QR6002			QR6003			QR6004											
MODE	E	C	B	E	C	B	E	C	B									
STOP	0	0	7.8	4.9	0	4.9	0	0	2.8									
PLAY	0	0	7.9	4.9	0	4.9	0	0	2.8									
REC	0	0	7.8	4.9	0	4.9	0	0	2.8									
F.F	0	0	7.8	4.9	0	4.9	0	0	2.8									
REW	0	0	7.8	4.9	0	4.9	0	0	2.8									

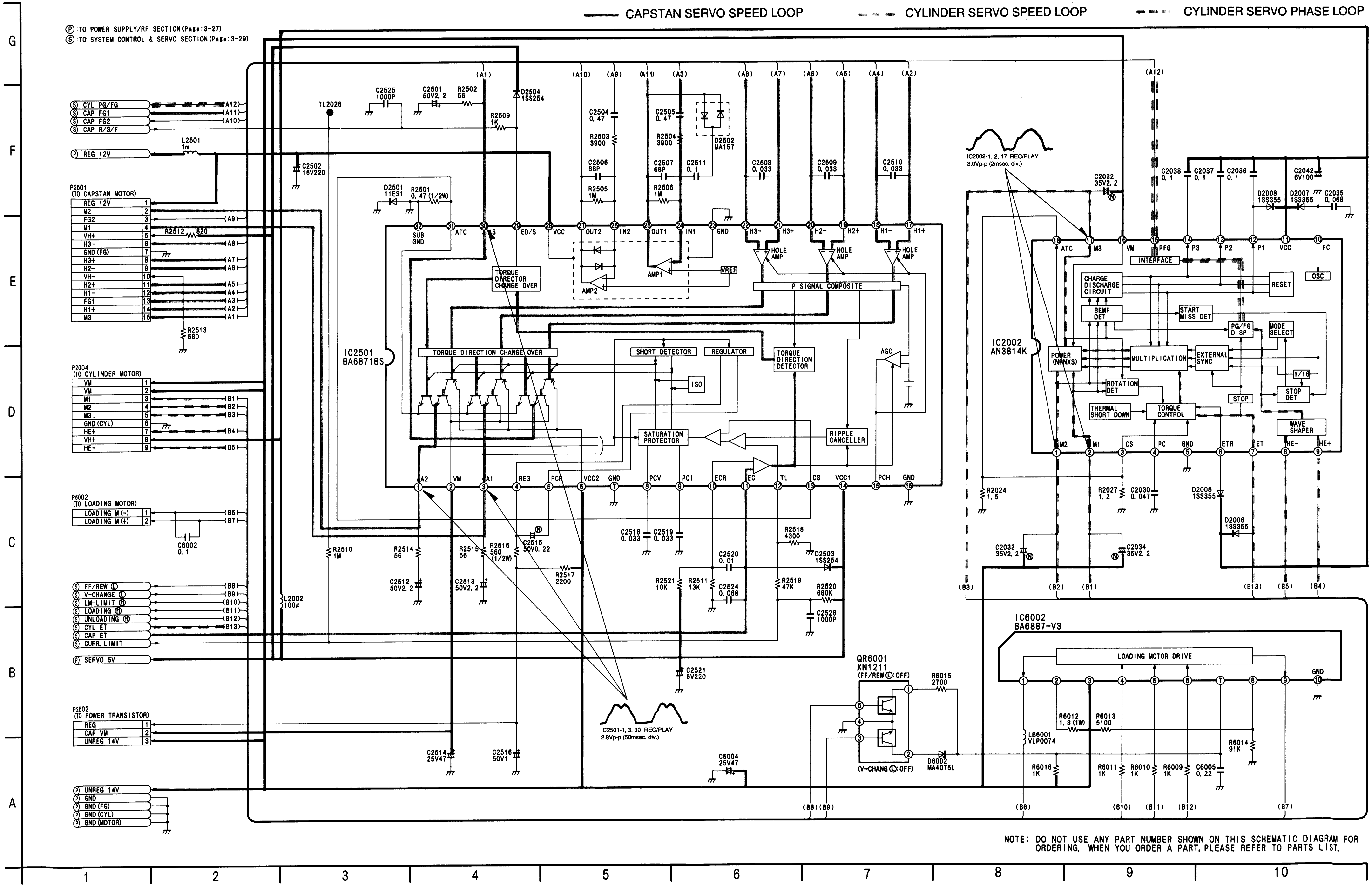
MOTOR DRIVE ICs DC VOLTAGE CHART (S-VHS: SP MODE)

REF. NO.	IC2002																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18		
STOP	13.6	13.6	0	0	0	2.4	4.7	2.5	2.4	1.0	5.0	4.1	4.1	3.7	5.0	13.6	13.6	0		
PLAY	12.9	12.9	0	0.5	0	2.4	2.3	2.5	2.4	2.6	5.0	3.7	3.7	3.7	1.0	13.2	12.9	0		
REC	12.9	12.9	0	0.5	0	2.4	2.3	2.5	2.4	2.6	5.0	3.7	3.7	3.7	1.0	13.3	12.9	0		
F.F	13.0	13.0	0	0.5	0	2.4	2.4	2.5	2.4	2.6	5.0	3.7	3.7	3.7	1.0	13.3	12.9	0		
REW	13.0	13.0	0	0.5	0	2.4	2.4	2.5	2.4	2.6	5.0	3.7	3.7	3.7	1.0	13.3	13.0	0		
REF. NO.	IC2501																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
STOP	1.9	4.5	1.9	13.0	1.2	13.6	0	0	1.0	2.9	1.4	0	0	5.0	1.4	0	2.3	2.3	2.3	2.2
PLAY	1.8	4.5	1.8	12.0	2.2	13.3	0	0	1.0	2.9	2.6	0.4	0	5.0	1.3	0	2.3	2.3	2.3	2.3
REC	1.6	4.5	1.6	12.1	2.0	13.3	0	0.5	0.6	2.9	2.6	0.3	0	5.0	1.3	0	0	2.3	2.3	2.3
F.F	6.3	13.1	6.3	4.6	11.4	13.3	0	0.5	0.7	2.9	2.1	0.4	0	5.0	1.4	0	0	2.3	2.3	2.3
REW	6.3	13.2	6.3	4.6	11.4	13.3	0	0.6	0.7	2.9	2.1	0.4	0	5.0	1.3	0	2.3	2.3	2.3	2.3
REF. NO.	IC2501																			
MODE	21	22	23	24	25	26	27	28	29	30	31	32								
STOP	2.3	2.3	0	5.9	5.8	5.9	5.8	11.5	2.0	1.9	0	0								
PLAY	2.3	2.3	0	5.9	5.8	5.9	5.9	11.5	0	1.8	0	0								
REC	2.3	2.3	0	5.9	5.8	5.9	5.9	11.5	0	1.7	0	0								
F.F	2.3	2.3	0	5.9	5.8	5.9	5.9	11.5	0	6.3	0	0								
REW	2.3	2.3	0	5.9	5.8	5.9	5.9	11.5	5.0	6.3	0	0								
REF. NO.	IC6002																			
MODE	1	2	3	4	5	6	7	8	9	10										
STOP	0.4	13.6	13.6	0	0	0	7.3	2.8	0.3	−0.1										
PLAY	0.3	13.3	13.3	0	0	0	7.3	2.6	0.4	0										
REC	0.2	13.3	13.3	0	0	0	7.3	2.6	0.4	0										
F.F	0.2	13.3	13.3	0	0	0	13.3	2.4	0.3	0										
REW	0.2	13.3	13.3	0	0	0	13.3	2.6	0.3	0										

MOTOR DRIVE TRs DC VOLTAGE CHART (S-VHS: SP MODE)

REF. NO.	QR6001																	
MODE	1	2	3	4	5													
STOP	0	0	4.8	0	4.8													
PLAY	0	0	4.8	0	4.8													
REC	0	0	4.8	0	4.8													
F.F	13.3	6.8	0	0	0													
REW	13.3	6.8	0	0	0													

3-9. MOTOR DRIVE SECTION IN MAIN SCHEMATIC DIAGRAM

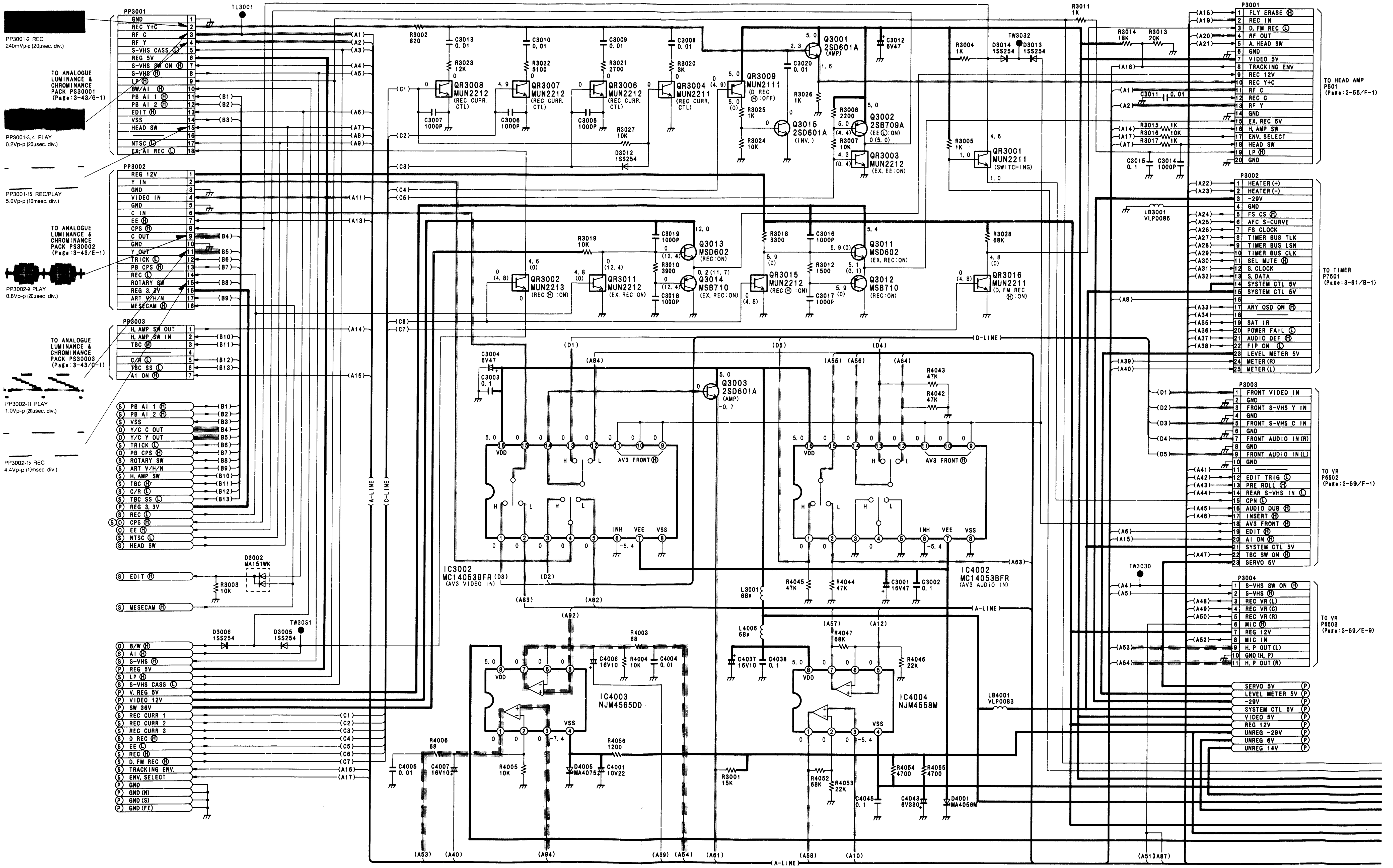

CAPSTAN SERVO SPEED LOOP
CYLINDER SERVO SPEED LOOP
CYLINDER SERVO PHASE LOOP
Ⓟ:TO POWER SUPPLY/RF SECTION(Page:3-27)
Ⓢ:TO SYSTEM CONTROL & SERVO SECTION(Page:3-29)
Ⓢ CYL PG/FG
Ⓢ CAP FG1
Ⓢ CAP FG2
Ⓢ CAP R/S/F
Ⓟ REG 12V
L2501 1m
P2501 (TO CAPSTAN MOTOR)
REG 12V
M2
FG2
M1
VH+
H3-
GND (FG)
H3+
H2-
VH-
H2+
H1-
FG1
H1+
M3
R2512 820
R2513 680
P2004 (TO CYLINDER MOTOR)
VM
VM
M1
M2
M3
GND (CYL)
HE+
VH+
HE-
P6002 (TO LOADING MOTOR)
LOADING M(-)
LOADING M(+)
C6002 0.1
Ⓢ FF/REW Ⓛ
Ⓢ V-CHANGE Ⓛ
Ⓢ LM-LIMIT Ⓗ
Ⓢ LOADING Ⓗ
Ⓢ UNLOADING Ⓗ
Ⓢ CYL ET
Ⓢ CAP ET
Ⓢ CURR. LIMIT
Ⓟ SERVO 5V
P2502 (TO POWER TRANSISTOR)
REG
CAP VM
UNREG 14V
Ⓟ UNREG 14V
Ⓟ GND
Ⓟ GND (FG)
Ⓟ GND (CYL)
Ⓟ GND (MOTOR)
TL2026
C2525 1000P
C2501 50V2.2
R2502 56
R2509 1K
D2504 1SS254
C2502 16V220
D2501 11ES1
R2501 0.47(1/2W)
C2504 0.47
R2503 3900
C2506 68P
R2505 1M
C2505 0.47
R2504 3900
C2507 68P
R2506 1M
C2511 0.1
D2502 MA157
C2508 0.033
C2509 0.033
C2510 0.033
SUB GND
ATC
M3
ED/S
VCC
OUT2
IN2
OUT1
IN1
GND
H3-
H3+
H2-
H2+
H1-
H1+
HOLE AMP
AMP1
AMP2
VREF
TORQUE DIRECTOR CHANGE OVER
P SIGNAL COMPOSITE
IC2501 BA6871BS
TORQUE DIRECTION CHANGE OVER
SHORT DETECTOR
REGULATOR
ISO
TORQUE DIRECTION DETECTOR
AGC
SATURATION PROTECTOR
RIPPLE CANCELLER
A2
VM
A1
REG
PCR
VCC2
GND
PCV
PCI
ECR
EC
TL
CS
VCC1
PCH
GND
L2002 100μ
R2510 1M
R2514 56
R2515 560
R2516 56 (1/2W)
C2515 50V0.22
R2517 2200
C2512 50V2.2
C2513 50V2.2
C2518 0.033
C2519 0.033
R2518 4300
D2503 1SS254
C2520 0.01
R2521 10K
R2511 13K
C2524 0.068
R2519 47K
R2520 680K
C2526 1000P
C2521 6V220
C2514 25V47
C2516 50V1
IC2501-1, 3, 30 REC/PLAY 2.8Vp-p (50msec. div.)
C6004 25V47
QR6001 XN1211 (FF/REW Ⓛ:OFF)
(V-CHANG Ⓛ:OFF)
R6015 2700
D6002 MA4075L
(A1) (A10) (A9) (A11) (A3) (A8) (A7) (A6) (A5) (A4) (A2) (A12)
(B1) (B2) (B3) (B4) (B5) (B6) (B7) (B8) (B9) (B10) (B11) (B12) (B13)
IC2002-1, 2, 17 REC/PLAY 3.0Vp-p (2msec. div.)
C2032 35V2.2
C2038 0.1
C2037 0.1
C2036 0.1
C2042 6V100
D2008 1SS355
D2007 1SS355
C2035 0.068
ATC
M3
VM
PFG
P3
P2
P1
VCC
FC
INTERFACE
CHARGE DISCHARGE CIRCUIT
RESET
OSC
BEMF DET
START MISS DET
PG/FG DISP
MODE SELECT
IC2002 AN3814K
POWER (NPNX3)
MULTIPLICATION
EXTERNAL SYNC
1/16
ROTATION DET
STOP
STOP DET
THERMAL SHORT DOWN
TORQUE CONTROL
WAVE SHAPER
M2
M1
CS
PC
GND
ETR
ET
HE-
HE+
R2024 1.5
R2027 1.2
C2030 0.047
D2005 1SS355
D2006 1SS355
C2033 35V2.2
C2034 35V2.2
IC6002 BA6887-V3
LOADING MOTOR DRIVE
GND
L6001 VLP0074
R6012 1.8(1W)
R6013 5100
R6014 91K
R6016 1K
R6011 1K
R6010 1K
R6009 1K
C6005 0.22
G F E D C B A
1 2 3 4 5 6 7 8 9 10

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

3-10. LUMINANCE & CHROMINANCE/AUDIO SECTION IN MAIN SCHEMATIC DIAGRAM

Ⓟ :TO POWER SUPPLY/RF SECTION(Page:3-27)
Ⓢ :TO SYSTEM CONTROL & SERVO SECTION(Page:3-29)
Ⓞ :TO OSD SECTION(Page:3-39)

VIDEO MAIN SIGANL PATH IN REC MODE
VIDEO MAIN SIGANL PATH IN PLAYBACK MODE

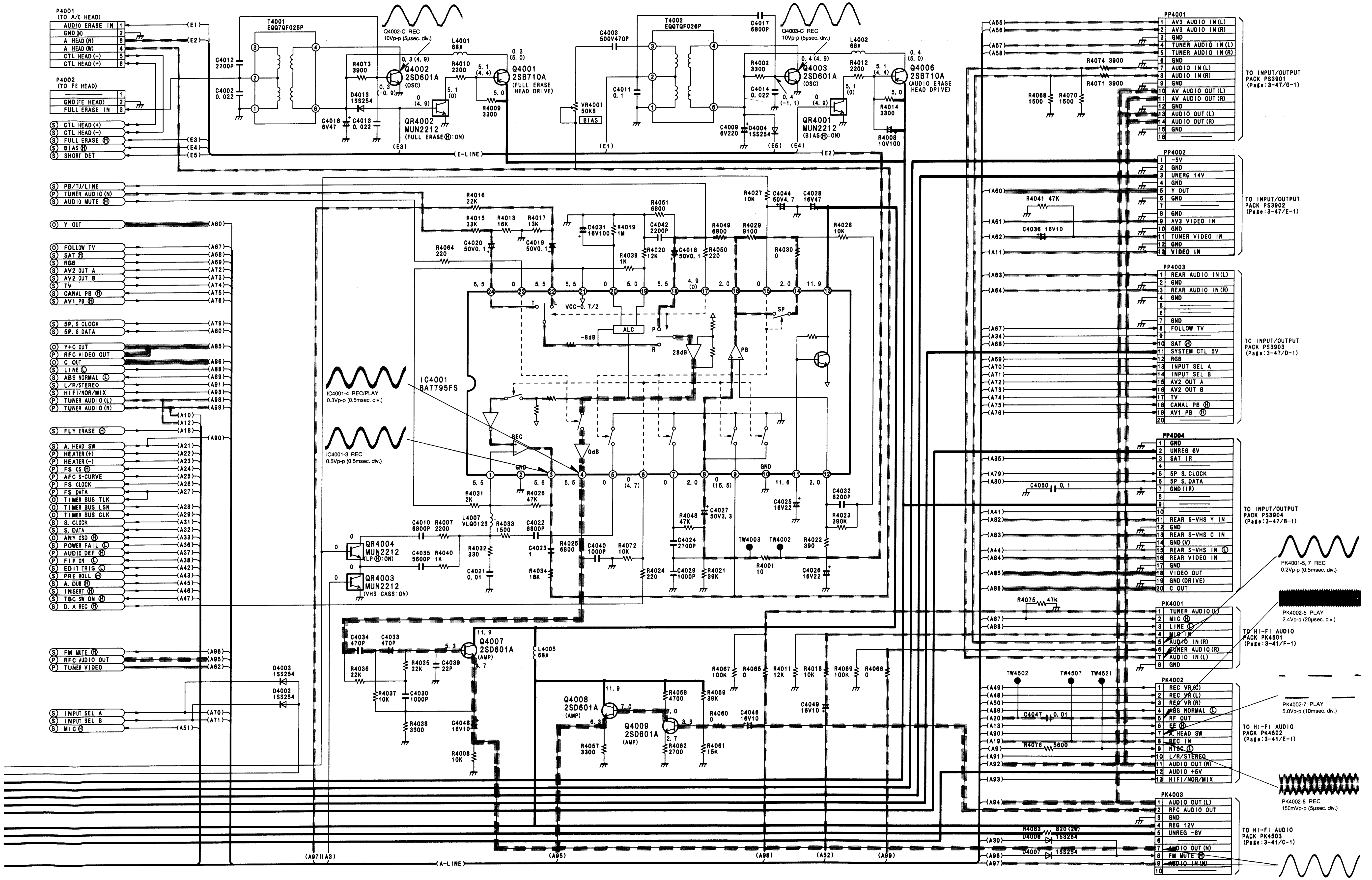


PP3001-2 REC
240mVp-p (20μsec. div.)
PP3001-3, 4 PLAY
0.2Vp-p (20μsec. div.)
PP3001-15 REC/PLAY
5.0Vp-p (10msec. div.)
PP3002-9 PLAY
0.8Vp-p (20μsec. div.)
PP3002-11 PLAY
1.0Vp-p (20μsec. div.)
PP3002-15 REC
4.4Vp-p (10msec. div.)
TO ANALOGUE LUMINANCE & CHROMINANCE PACK PS30001 (Page:3-43/G-1)
TO ANALOGUE LUMINANCE & CHROMINANCE PACK PS30002 (Page:3-43/E-1)
TO ANALOGUE LUMINANCE & CHROMINANCE PACK PS30003 (Page:3-43/C-1)
PP3001
GND
REC Y+C
RF C
RF Y
S-VHS CASS Ⓛ
REC 5V
S-VHS SW ON Ⓗ
S-VHS Ⓗ
LP Ⓗ
BW/AI Ⓗ
PB AI 1 Ⓗ
PB AI 2 Ⓗ
EDIT Ⓗ
VSS
HEAD SW
NTSC Ⓛ
EX.AI REC Ⓛ
PP3002
REG 12V
Y IN
GND
VIDEO IN
GND
C IN
EE Ⓗ
CPS Ⓗ
C OUT
GND
Y OUT
TRICK Ⓛ
PB CPS Ⓗ
REC Ⓛ
ROTARY SW
REG 3.3V
ART V/H/N
MESECAM Ⓗ
PP3003
H. AMP SW OUT
H. AMP SW IN
TBC Ⓗ
C/R Ⓛ
TBC SS Ⓛ
AI ON Ⓗ
TL3001
R3002 820
C3013 0.01
R3023 12K
QR3008 MUN2212 (REC CURR. CTL)
C3007 1000P
C3010 0.01
R3022 5100
QR3007 MUN2212 (REC CURR. CTL)
C3006 1000P
C3009 0.01
R3021 2700
QR3006 MUN2212 (REC CURR. CTL)
C3005 1000P
R3027 10K
D3012 1SS254
C3008 0.01
R3020 3K
QR3004 MUN2211 (REC CURR. CTL)
QR3009 MUN2111 (D REC Ⓗ:OFF)
R3025 1K
R3024 10K
Q3001 2SD601A (AMP)
C3020 0.01
C3012 6V47
R3026 1K
Q3015 2SD601A (INV.)
R3006 2200
R3007 10K
Q3002 2SB709A (EE Ⓛ:ON)
QR3003 MUN2212 (EX. EE:ON)
R3004 1K
TW3032
D3014 1SS254
D3013 1SS254
R3005 1K
QR3001 MUN2211 (SWITCHING)
R3011 1K
R3014 18K
R3013 20K
C3011 0.01
R3015 1K
R3016 10K
R3017 1K
C3015 0.1
C3014 1000P
LB3001 VLP0085
R3019 10K
QR3002 MUN2213 (REC Ⓗ:ON)
QR3011 MUN2212 (EX. REC:ON)
C3019 1000P
R3010 3900
C3018 1000P
Q3013 MSD602 (REC:ON)
Q3014 MSB710 (EX. REC:ON)
R3018 3300
QR3015 MUN2212 (REC Ⓗ:ON)
C3016 1000P
R3012 1500
C3017 1000P
Q3011 MSD602 (EX. REC:ON)
Q3012 MSB710 (REC:ON)
R3028 68K
QR3016 MUN2211 (D. FM REC Ⓗ:ON)
C3004 6V47
C3003 0.1
Q3003 2SD601A (AMP)
R4043 47K
R4042 47K
IC3002 MC14053BFR (AV3 VIDEO IN)
IC4002 MC14053BFR (AV3 AUDIO IN)
AV3 FRONT Ⓗ
INH VEE VSS
VDD
D3002 MA151WK
R3003 10K
D3006 1SS254
D3005 1SS254
TW3031
R4045 47K
R4044 47K
C3001 16V47
C3002 0.1
L3001 68μ
L4006 68μ
C4037 16V10
C4038 0.1
R4047 68K
R4046 22K
R4003 68
C4006 16V10
R4004 10K
C4004 0.01
IC4003 NJM4565DD
IC4004 NJM4558M
R4006 68
C4005 0.01
C4007 16V10
R4005 10K
D4005 MA4075
R4056 1200
C4001 10V22
R3001 15K
R4052 68K
R4053 22K
C4045 0.1
C4043 6V330
R4054 4700
R4055 4700
D4001 MA4056M
LB4001 VLP0083
TW3030
A-LINE
C-LINE
D-LINE
P3001
FLY ERASE Ⓗ
REC IN
D. FM REC Ⓛ
RF OUT
A. HEAD SW
GND
VIDEO 5V
TRACKING ENV
REC 12V
REC Y+C
RF C
REC C
RF Y
GND
EX. REC 5V
H. AMP SW
ENV. SELECT
HEAD SW
LP Ⓗ
GND
TO HEAD AMP P501 (Page:3-55/F-1)
P3002
HEATER (+)
HEATER (−)
−29V
GND
FS CS Ⓗ
AFC S-CURVE
FS CLOCK
TIMER BUS TLK
TIMER BUS LSN
TIMER BUS CLK
SEL MUTE Ⓗ
S. CLOCK
S. DATA
SYSTEM CTL 5V
SYSTEM CTL 5V
ANY OSD ON Ⓗ
SAT IR
POWER FAIL Ⓛ
AUDIO DEF Ⓗ
FIP ON Ⓛ
LEVEL METER 5V
METER(R)
METER(L)
TO TIMER P7501 (Page:3-61/B-1)
P3003
FRONT VIDEO IN
GND
FRONT S-VHS Y IN
GND
FRONT S-VHS C IN
GND
FRONT AUDIO IN(R)
GND
FRONT AUDIO IN(L)
GND
EDIT TRIG Ⓛ
PRE ROLL Ⓗ
REAR S-VHS IN Ⓛ
CPM Ⓛ
AUDIO DUB Ⓗ
INSERT Ⓗ
AV3 FRONT Ⓗ
EDIT Ⓗ
AI ON Ⓗ
SYSTEM CTL 5V
TBC SW ON Ⓗ
SERVO 5V
TO VR P6502 (Page:3-59/F-1)
P3004
S-VHS SW ON Ⓗ
S-VHS Ⓗ
REC VR(L)
REC VR(C)
REC VR(R)
MIC Ⓗ
REG 12V
MIC IN
H. P OUT(L)
GND(H. P)
H. P OUT(R)
TO VR P6503 (Page:3-59/E-9)
SERVO 5V Ⓟ
LEVEL METER 5V Ⓟ
−29V Ⓟ
SYSTEM CTL 5V Ⓟ
VIDEO 5V Ⓟ
REG 12V Ⓟ
UNREG −29V Ⓟ
UNREG 6V Ⓟ
UNREG 14V Ⓟ
Ⓢ PB AI 1 Ⓗ
Ⓢ PB AI 2 Ⓗ
Ⓢ VSS
Ⓞ Y/C C OUT
Ⓞ Y/C Y OUT
Ⓢ TRICK Ⓛ
Ⓞ PB CPS Ⓗ
Ⓢ ROTARY SW
Ⓢ ART V/H/N
Ⓢ H. AMP SW
Ⓢ TBC Ⓗ
Ⓢ C/R Ⓛ
Ⓢ TBC SS Ⓛ
Ⓟ REG 3.3V
Ⓢ REC Ⓛ
ⓈⓄ CPS Ⓗ
Ⓞ EE Ⓗ
Ⓢ NTSC Ⓛ
Ⓢ HEAD SW
Ⓢ EDIT Ⓗ
Ⓢ MESECAM Ⓗ
Ⓞ B/W Ⓗ
Ⓞ AI Ⓗ
Ⓢ S-VHS Ⓗ
Ⓟ REG 5V
Ⓢ LP Ⓗ
Ⓢ S-VHS CASS Ⓛ
Ⓟ V. REG 5V
Ⓟ VIDEO 12V
Ⓟ SW 36V
Ⓢ REC CURR 1
Ⓢ REC CURR 2
Ⓢ REC CURR 3
Ⓢ D REC Ⓗ
Ⓢ EE Ⓛ
Ⓢ REC Ⓗ
Ⓢ D. FM REC Ⓗ
Ⓢ TRACKING ENV.
Ⓢ ENV. SELECT
Ⓟ GND
Ⓟ GND(N)
Ⓟ GND(S)
Ⓟ GND(FE)

NOTE:THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS ( )ON THIS DIAGRAM IS RECORD MODE WITH PAL COLOUR SIGNAL. (S-VHS:SP MODE)

AUDIO MAIN SIGNAL PATH IN REC MODE

AUDIO MAIN SIGNAL PATH IN PLAYBACK MODE


P4001 (TO A/C HEAD)
AUDIO ERASE IN
GND(N)
A HEAD(R)
A HEAD(W)
CTL HEAD(-)
CTL HEAD(+)
P4002 (TO FE HEAD)
GND(FE HEAD)
FULL ERASE IN
CTL HEAD(+)
CTL HEAD(-)
FULL ERASE Ⓗ
BIAS Ⓗ
SHORT DET
PB/TU/LINE
TUNER AUDIO(N)
AUDIO MUTE Ⓗ
Y OUT
FOLLOW TV
SAT Ⓗ
RGB
AV2 OUT A
AV2 OUT B
TV
CANAL PB Ⓗ
AV1 PB Ⓗ
5P. S CLOCK
5P. S DATA
Y+C OUT
RFC VIDEO OUT
C OUT
LINE Ⓛ
ABS NORMAL Ⓛ
L/R/STEREO
HIFI/NOR/MIX
TUNER AUDIO(L)
TUNER AUDIO(R)
FLY ERASE Ⓗ
A. HEAD SW
HEATER(+)
HEATER(-)
FS CS Ⓗ
AFC S-CURVE
FS CLOCK
FS DATA
TIMER BUS TLK
TIMER BUS LSN
TIMER BUS CLK
S. CLOCK
S. DATA
ANY OSD Ⓗ
POWER FAIL Ⓛ
AUDIO DEF Ⓗ
FIP ON Ⓛ
EDIT TRIG Ⓛ
PRE ROLL Ⓗ
A. DUB Ⓗ
INSERT Ⓗ
TBC SW ON Ⓗ
D. A REC Ⓗ
FM MUTE Ⓗ
RFC AUDIO OUT
TUNER VIDEO
INPUT SEL A
INPUT SEL B
MIC Ⓗ
T4001 EQQ7QF025P
Q4002-C REC 10Vp-p (5μsec. div.)
Q4002 2SD601A (OSC)
Q4001 2SB710A (FULL ERASE HEAD DRIVE)
QR4002 MUN2212 (FULL ERASE Ⓗ:ON)
L4001 68μ
R4073 3900
R4010 2200
R4009 3300
D4013 1SS254
C4012 2200P
C4002 0.022
C4016 6V47
C4013 0.022
T4002 EQQ7QF026P
C4003 500V470P
C4017 6800P
Q4003-C REC 10Vp-p (5μsec. div.)
Q4003 2SD601A (OSC)
Q4006 2SB710A (AUDIO ERASE HEAD DRIVE)
QR4001 MUN2212 (BIAS Ⓗ:ON)
L4002 68μ
R4002 3300
R4012 2200
R4014 3300
R4008 10V100
C4014 0.022
C4011 0.1
VR4001 50KB
BIAS
C4009 6V220
D4004 1SS254
E-LINE
IC4001 BA7795FS
IC4001-4 REC/PLAY 0.3Vp-p (0.5msec. div.)
IC4001-3 REC 0.5Vp-p (0.5msec. div.)
ALC
VCC-0.7/2
-8dB
28dB
0dB
REC
PB
SP
GND
R4016 22K
R4015 33K
R4013 16K
R4017 13K
R4064 220
C4020 50V0.1
C4019 50V0.1
C4031 16V100
R4019 1M
R4051 6800
C4042 2200P
R4039 1K
R4020 12K
C4018 50V0.1
R4050 220
R4049 6800
R4029 9100
R4030 0
R4027 10K
C4044 50V4.7
C4028 16V47
R4028 10K
R4031 2K
R4026 47K
L4007 VLQ0123
R4033 1500
C4022 6800P
C4010 6800P
R4007 2200
C4035 5600P
R4040 1K
R4032 330
C4021 0.01
C4023 1
R4034 18K
R4025 6800
C4040 1000P
R4072 10K
R4024 220
R4048 47K
C4027 50V3.3
C4024 2700P
C4029 1000P
R4021 39K
TW4003
TW4002
R4001 10
R4022 390
C4025 16V22
C4032 8200P
R4023 390K
C4026 16V22
QR4004 MUN2212 (LP Ⓗ:ON)
QR4003 MUN2212 (VHS CASS:ON)
Q4007 2SD601A (AMP)
C4034 470P
C4033 470P
R4036 22K
R4035 22K
C4039 22P
R4037 10K
C4030 1000P
R4038 3300
C4048 16V10
R4008 10K
L4005 68μ
D4003 1SS254
D4002 1SS254
Q4008 2SD601A (AMP)
Q4009 2SD601A (AMP)
R4057 3300
R4058 4700
R4059 39K
R4062 2700
R4060 0
C4046 16V10
R4061 15K
R4067 100K
R4065 0
R4011 12K
R4018 10K
R4069 100K
R4066 0
C4049 16V10
A-LINE
PP4001
AV3 AUDIO IN(L)
AV3 AUDIO IN(R)
GND
TUNER AUDIO IN(L)
TUNER AUDIO IN(R)
GND
AUDIO IN(L)
AUDIO IN(R)
GND
AV AUDIO OUT(L)
AV AUDIO OUT(R)
GND
AUDIO OUT(L)
AUDIO OUT(R)
GND
TO INPUT/OUTPUT PACK PS3901 (Page:3-47/G-1)
R4074 3900
R4071 3900
R4068 1500
R4070 1500
PP4002
-5V
GND
UNERG 14V
GND
Y OUT
GND
GND
AV3 VIDEO IN
GND
TUNER VIDEO IN
GND
VIDEO IN
TO INPUT/OUTPUT PACK PS3902 (Page:3-47/E-1)
R4041 47K
C4036 16V10
PP4003
REAR AUDIO IN(L)
GND
REAR AUDIO IN(R)
GND
GND
FOLLOW TV
SAT Ⓗ
SYSTEM CTL 5V
RGB
INPUT SEL A
INPUT SEL B
AV2 OUT A
AV2 OUT B
TV
CANAL PB Ⓗ
AV1 PB Ⓗ
TO INPUT/OUTPUT PACK PS3903 (Page:3-47/D-1)
PP4004
GND
UNREG 6V
SAT IR
5P S. CLOCK
5P S. DATA
GND(IR)
REAR S-VHS Y IN
GND
REAR S-VHS C IN
GND(V)
REAR S-VHS IN Ⓛ
REAR VIDEO IN
GND
VIDEO OUT
GND(DRIVE)
C OUT
TO INPUT/OUTPUT PACK PS3904 (Page:3-47/B-1)
C4050 0.1
PK4001-5, 7 REC 0.2Vp-p (0.5msec. div.)
PK4001
TUNER AUDIO(L)
MIC Ⓗ
LINE Ⓛ
MIC IN
AUDIO IN(R)
TUNER AUDIO(R)
AUDIO IN(L)
GND
TO HI-FI AUDIO PACK PK4501 (Page:3-41/F-1)
R4075 47K
PK4002-5 PLAY 2.4Vp-p (20μsec. div.)
TW4502
TW4507
TW4521
PK4002
REC VR(C)
REC VR(L)
REC VR(R)
ABS NORMAL Ⓛ
RF OUT
EE Ⓗ
A. HEAD SW
REC IN
NTSC Ⓛ
L/R/STEREO
AUDIO OUT(R)
AUDIO +5V
HIFI/NOR/MIX
TO HI-FI AUDIO PACK PK4502 (Page:3-41/E-1)
PK4002-7 PLAY 5.0Vp-p (10msec. div.)
C4047 0.01
R4076 5600
PK4002-8 REC 150mVp-p (5μsec. div.)
PK4003
AUDIO OUT(L)
RFC AUDIO OUT
GND
REG 12V
UNREG -8V
AUDIO OUT(N)
FM MUTE Ⓗ
AUDIO IN(N)
TO HI-FI AUDIO PACK PK4503 (Page:3-41/C-1)
R4063 820(2W)
D4006 1SS254
D4007 1SS254
PK4003-7 PLAY 80mVp-p (0.5msec. div.)
PK4003-9 REC 0.2Vp-p (0.5msec. div.)
12
13
14
15
16
17
18
19
20
21
22

THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE WITH PAL COLOUR SIGNAL. (S-VHS:SP MODE)

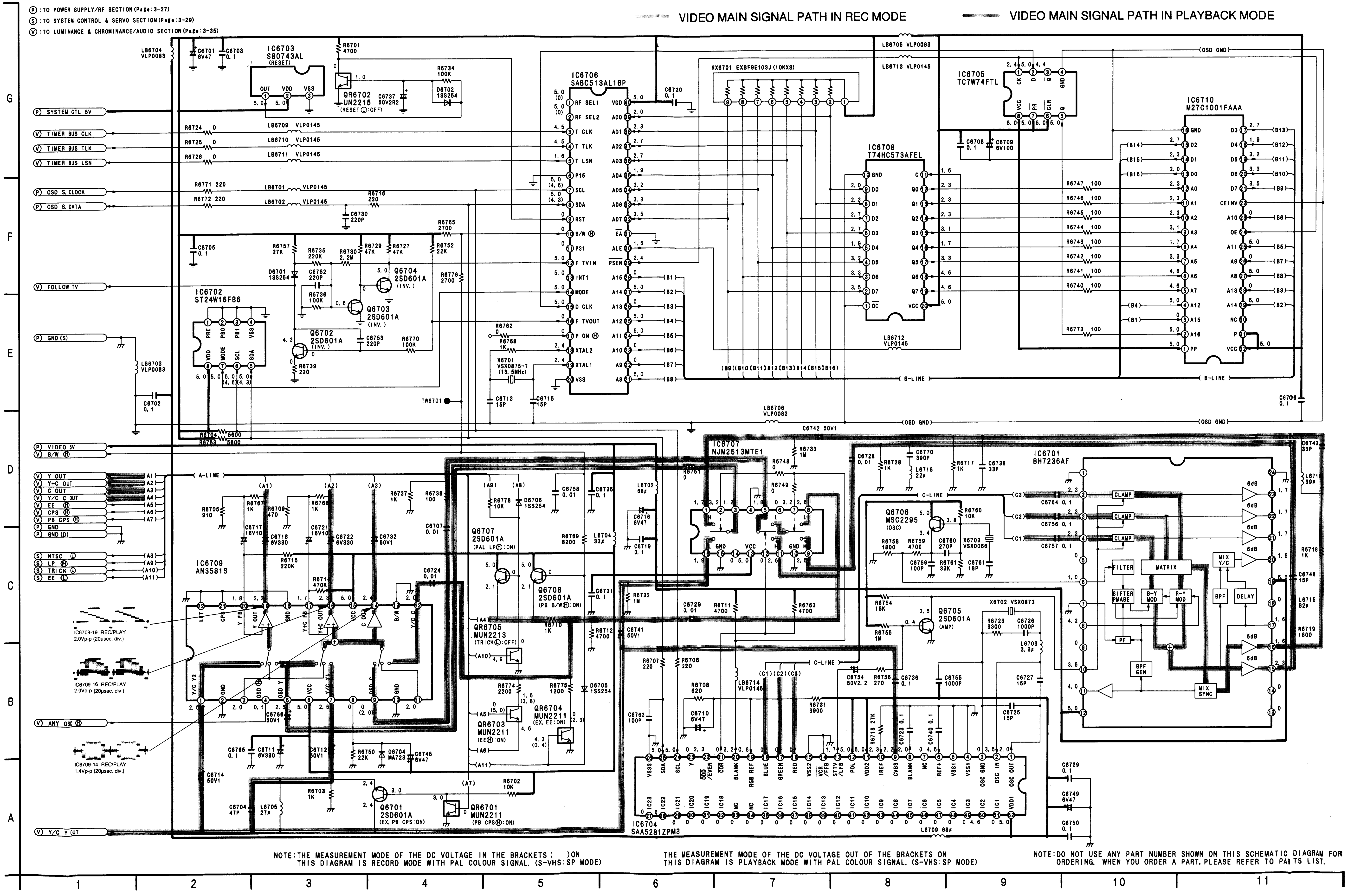
• LINE IN SIGNAL LEVEL...-10dB 1kHz

NOTE:DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

3-11. OSD SECTION IN MAIN SCHEMATIC DIAGRAM

Ⓟ :TO POWER SUPPLY/RF SECTION (Page:3-27)
Ⓢ :TO SYSTEM CONTROL & SERVO SECTION (Page:3-29)
Ⓥ :TO LUMINANCE & CHROMINANCE/AUDIO SECTION (Page:3-35)

VIDEO MAIN SIGNAL PATH IN REC MODE
VIDEO MAIN SIGNAL PATH IN PLAYBACK MODE



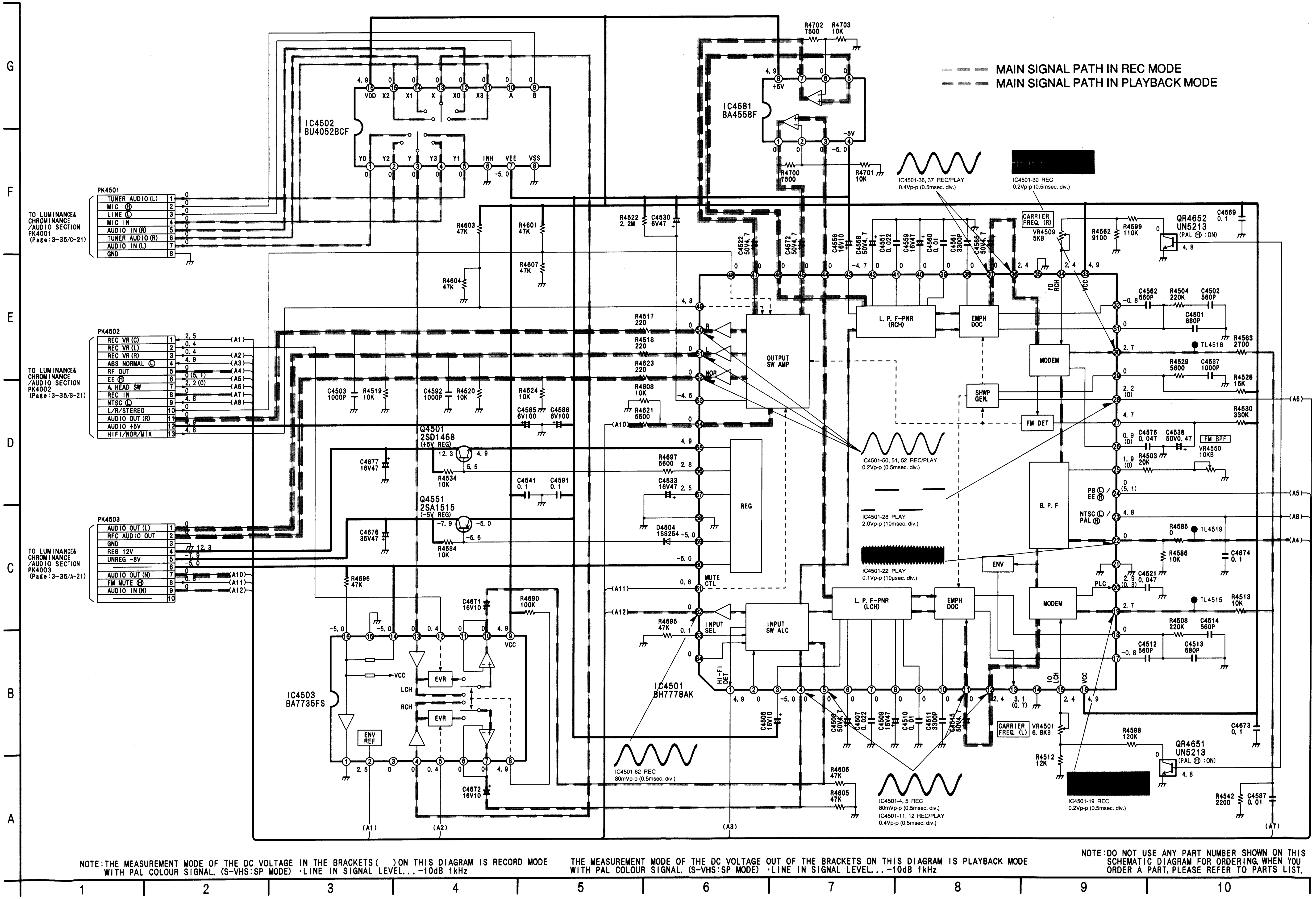
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
10
11
Ⓟ SYSTEM CTL 5V
Ⓥ TIMER BUS CLK
Ⓥ TIMER BUS TLK
Ⓥ TIMER BUS LSN
Ⓟ OSD S.CLOCK
Ⓟ OSD S.DATA
Ⓥ FOLLOW TV
Ⓟ GND (S)
Ⓟ VIDEO 5V
Ⓥ B/W Ⓗ
Ⓥ Y OUT
Ⓥ Y+C OUT
Ⓥ C OUT
Ⓥ Y/C C OUT
Ⓥ EE Ⓗ
Ⓥ CPS Ⓗ
Ⓥ PB CPS Ⓗ
Ⓟ GND
Ⓟ GND (D)
Ⓢ NTSC Ⓛ
Ⓢ LP Ⓗ
Ⓢ TRICK Ⓛ
Ⓢ EE Ⓛ
Ⓥ ANY OSD Ⓗ
Ⓥ Y/C Y OUT
IC6703 S80743AL (RESET)
QR6702 UN2215 (RESET Ⓛ:OFF)
IC6702 ST24W16FB6
Q6702 2SD601A (INV.)
Q6703 2SD601A (INV.)
Q6704 2SD601A (INV.)
IC6706 SABC513AL16P
X6701 VSX0875-T (13.5MHz)
RX6701 EXBF9E103J (10KX8)
IC6708 T74HC573AFEL
IC6705 TC7W74FTL
IC6710 M27C1001FAAA
B-LINE
OSD GND
A-LINE
IC6709 AN3581S
Q6707 2SD601A (PAL LPⒽ:ON)
Q6708 2SD601A (PB B/WⒽ:ON)
QR6705 MUN2213 (TRICKⓁ:OFF)
QR6703 MUN2211 (EEⒽ:ON)
QR6704 MUN2211 (EX. EE:ON)
Q6701 2SD601A (EX. PB CPS:ON)
QR6701 MUN2211 (PB CPSⒽ:ON)
IC6707 NJM2513MTE1
C-LINE
Q6706 MSC2295 (OSC)
X6703 VSX0066
Q6705 2SD601A (AMP)
X6702 VSX0873
IC6701 BH7236AF
CLAMP
FILTER
MATRIX
SIFTER PMABE
B-Y MOD
R-Y MOD
PF
BPF GEN
MIX Y/C
BPF
DELAY
MIX SYNC
6dB
IC6704 SAA5281ZPM3
IC6709-19 REC/PLAY 2.0Vp-p (20μsec. div.)
IC6709-16 REC/PLAY 2.0Vp-p (20μsec. div.)
IC6709-14 REC/PLAY 1.4Vp-p (20μsec. div.)
TW6701

NOTE:THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS ( )ON THIS DIAGRAM IS RECORD MODE WITH PAL COLOUR SIGNAL. (S-VHS:SP MODE)

THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE WITH PAL COLOUR SIGNAL. (S-VHS:SP MODE)

NOTE:DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

3-12. Hi-Fi AUDIO PACK SCHEMATIC DIAGRAM

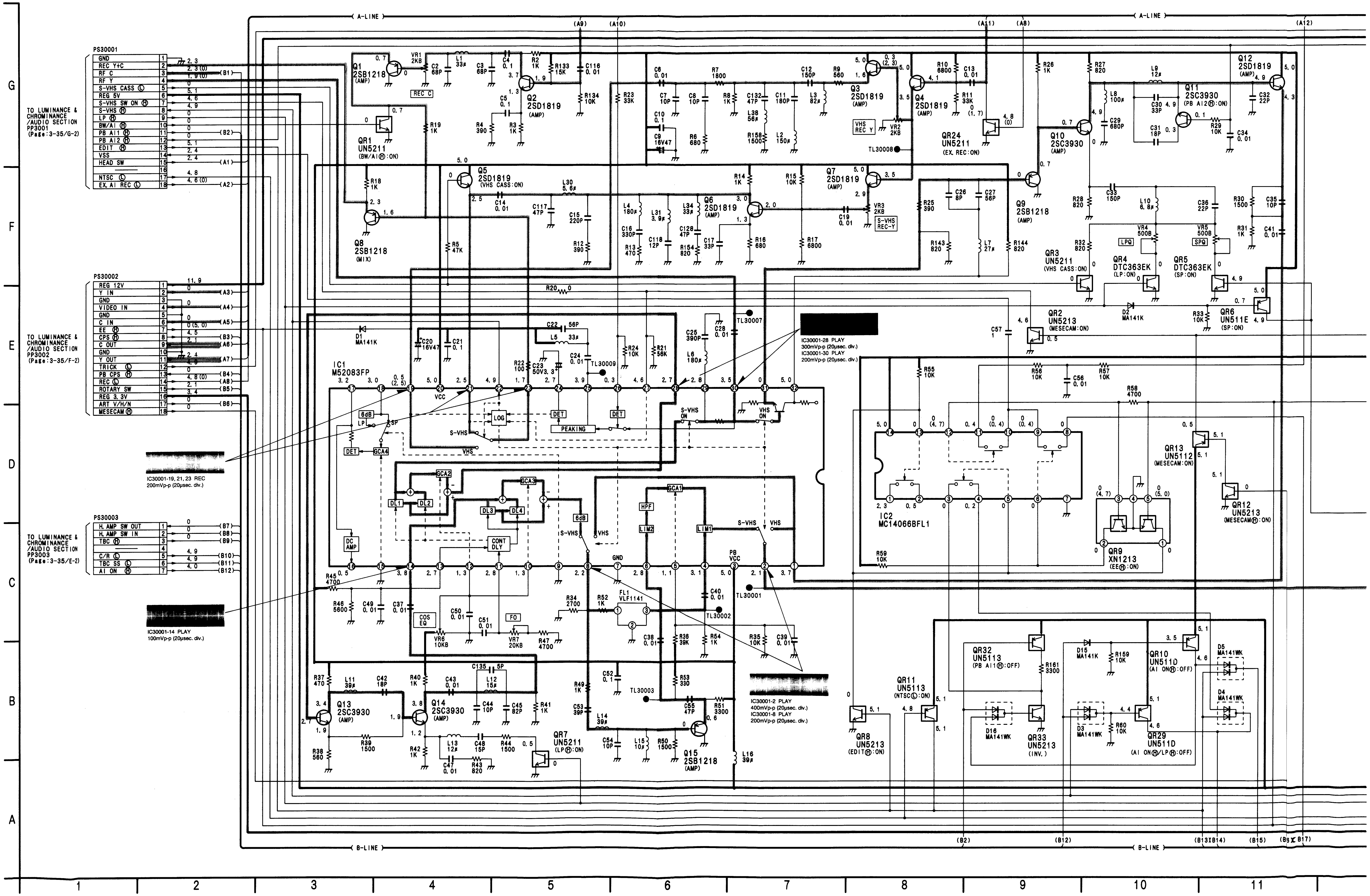

MAIN SIGNAL PATH IN REC MODE
MAIN SIGNAL PATH IN PLAYBACK MODE
IC4502 BU4052BCF
VDD X2 X1 X X0 X3 A B
Y0 Y2 Y Y3 Y1 INH VEE VSS
IC4681 BA4558F
+5V
-5V
R4702 7500
R4703 10K
R4700 7500
R4701 10K
PK4501
TUNER AUDIO (L)
MIC Ⓗ
LINE Ⓛ
MIC IN
AUDIO IN (R)
TUNER AUDIO (R)
AUDIO IN (L)
GND
TO LUMINANCE& CHROMINANCE /AUDIO SECTION PK4001 (Page:3-35/C-21)
PK4502
REC VR (C)
REC VR (L)
REC VR (R)
ABS NORMAL Ⓛ
RF OUT
EE Ⓗ
A. HEAD SW
REC IN
NTSC Ⓛ
L/R/STEREO
AUDIO OUT (R)
AUDIO +5V
HIFI/NOR/MIX
TO LUMINANCE& CHROMINANCE /AUDIO SECTION PK4002 (Page:3-35/B-21)
PK4503
AUDIO OUT (L)
RFC AUDIO OUT
GND
REG 12V
UNREG -8V
AUDIO OUT (N)
FM MUTE Ⓗ
AUDIO IN (N)
TO LUMINANCE& CHROMINANCE /AUDIO SECTION PK4003 (Page:3-35/A-21)
R4603 47K
R4601 47K
R4604 47K
R4607 47K
R4522 2.2M
C4530 6V47
C4522 50V4.7
C4572 50V4.7
C4556 16V10
C4558 50V4.7
C4551 0.022
C4559 16V47
C4560 0.01
C4561 3300P
C4565 50V4.7
CARRIER FREQ. (R)
VR4509 5KB
R4562 9100
R4599 110K
QR4652 UN5213 (PAL Ⓗ:ON)
C4569 0.1
R4517 220
R4518 220
R4623 220
R4608 10K
R4621 5600
C4503 1000P
R4519 10K
C4592 1000P
R4520 10K
R4624 10K
C4585 6V100
C4586 6V100
OUTPUT SW AMP
L. P. F-PNR (RCH)
EMPH DOC
SHWP GEN.
FM DET
MODEM
B. P. F
ENV
L. P. F-PNR (LCH)
INPUT SW ALC
REG
MUTE CTL
INPUT SEL
HI-FI DET
IC4501 BH7778AK
C4562 560P
R4504 220K
C4502 560P
C4501 680P
R4563 2700
TL4516
R4529 5600
C4537 1000P
R4528 15K
R4530 330K
C4576 0.047
C4538 50V0.47
FM BPF
VR4550 10KB
R4503 20K
PB Ⓛ / EE Ⓗ
NTSC Ⓛ / PAL Ⓗ
R4585 0
TL4519
R4586 10K
C4674 0.1
C4521 0.047
PLC
TL4515
R4513 10K
R4508 220K
C4514 560P
C4512 560P
C4513 680P
Q4501 2SD1468 (+5V REG)
R4534 10K
C4677 16V47
Q4551 2SA1515 (-5V REG)
R4584 10K
C4676 35V47
C4541 0.1
C4591 0.1
R4697 5600
C4533 16V47
D4504 1SS254
R4696 47K
R4695 47K
IC4503 BA7735FS
VCC
LCH
RCH
EVR
ENV REF
C4671 16V10
R4690 100K
C4672 16V10
C4506 16V10
C4508 50V4.7
C4507 0.022
C4509 16V47
C4510 0.01
C4511 3300P
C4542 50V4.7
CARRIER FREQ. (L)
VR4501 6.8KB
R4512 12K
R4598 120K
QR4651 UN5213 (PAL Ⓗ:ON)
C4673 0.1
R4606 47K
R4605 47K
R4542 2200
C4587 0.01
IC4501-36, 37 REC/PLAY 0.4Vp-p (0.5msec. div.)
IC4501-30 REC 0.2Vp-p (0.5msec. div.)
IC4501-50, 51, 52 REC/PLAY 0.2Vp-p (0.5msec. div.)
IC4501-28 PLAY 2.0Vp-p (10msec. div.)
IC4501-22 PLAY 0.1Vp-p (10μsec. div.)
IC4501-62 REC 80mVp-p (0.5msec. div.)
IC4501-4, 5 REC 80mVp-p (0.5msec. div.) IC4501-11, 12 REC/PLAY 0.4Vp-p (0.5msec. div.)
IC4501-19 REC 0.2Vp-p (0.5msec. div.)
(A1) (A2) (A3) (A4) (A5) (A6) (A7) (A8) (A10) (A11) (A12)
G F E D C B A
1 2 3 4 5 6 7 8 9 10

NOTE:THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS( )ON THIS DIAGRAM IS RECORD MODE WITH PAL COLOUR SIGNAL. (S-VHS:SP MODE) ·LINE IN SIGNAL LEVEL...-10dB 1kHz

THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE WITH PAL COLOUR SIGNAL. (S-VHS:SP MODE) ·LINE IN SIGNAL LEVEL...-10dB 1kHz

NOTE:DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

3-13. ANALOGUE LUMINANCE & CHROMINANCE PACK SCHEMATIC DIAGRAM
[REF. NO. 30000 SERIES]


A-LINE
B-LINE
(A9)
(A10)
(A11)
(A8)
(A12)
(B2)
(B12)
(B13)(B14)
(B15)
(B9)(B17)
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
10
11
PS30001
GND 1
REC Y+C 2
RF C 3
RF Y 4
S-VHS CASS Ⓛ 5
REG 5V 6
S-VHS SW ON Ⓗ 7
S-VHS Ⓗ 8
LP Ⓗ 9
BW/AI Ⓗ 10
PB AI1 Ⓗ 11
PB AI2 Ⓗ 12
EDIT Ⓗ 13
VSS 14
HEAD SW 15
16
NTSC Ⓛ 17
EX. AI REC Ⓛ 18
2. 3
2. 3 (0)
1. 9 (0)
0
5. 1
4. 6
4. 9
0
0
0
0
5. 1
2. 4
2. 4
4. 8
4. 6 (0)
(B1)
(B2)
(A1)
(A2)
TO LUMINANCE & CHROMINANCE /AUDIO SECTION PP3001 (Page:3-35/G-2)
PS30002
REG 12V 1
Y IN 2
GND 3
VIDEO IN 4
GND 5
C IN 6
EE Ⓗ 7
CPS Ⓗ 8
C OUT 9
GND 10
Y OUT 11
TRICK Ⓛ 12
PB CPS Ⓗ 13
REC Ⓛ 14
ROTARY SW 15
REG 3. 3V 16
ART V/H/N 17
MESECAM Ⓗ 18
11. 9
0
0
0
0 (5. 0)
4. 5
2. 1
2. 4
4. 9
0
4. 8 (0)
2. 1
3. 4
0
0
(A3)
(A4)
(A5)
(B3)
(A6)
(A7)
(B4)
(A8)
(B5)
(B6)
TO LUMINANCE & CHROMINANCE /AUDIO SECTION PP3002 (Page:3-35/F-2)
PS30003
H. AMP SW OUT 1
H. AMP SW IN 2
TBC Ⓗ 3
4
C/R Ⓛ 5
TBC SS Ⓛ 6
AI ON Ⓗ 7
0
0
0
4. 9
4. 9
4. 0
(B7)
(B8)
(B9)
(B10)
(B11)
(B12)
TO LUMINANCE & CHROMINANCE /AUDIO SECTION PP3003 (Page:3-35/E-2)
Q1 2SB1218 (AMP)
VR1 2KB
C2 68P
L1 33μ
C3 68P
C4 0. 1
R2 1K
R133 15K
C116 0. 01
REC C
QR1 UN5211 (BW/AI Ⓗ:ON)
R19 1K
C5 0. 1
Q2 2SD1819 (AMP)
R4 390
R3 1K
R134 10K
R23 33K
C6 0. 01
R7 1800
C12 150P
R9 560
Q3 2SD1819 (AMP)
C7 10P
C8 10P
R8 1K
C132 47P
C11 180P
L3 82μ
L38 56μ
R158 1500
L2 150μ
C10 0. 1
C9 16V47
R6 680
VHS REC Y
VR2 2KB
TL30008
R10 6800
C13 0. 01
Q4 2SD1819 (AMP)
R11 33K
QR24 UN5211 (EX. REC:ON)
R26 1K
R27 820
L9 12μ
Q12 2SD1819 (AMP)
Q11 2SC3930 (PB AI2Ⓗ:ON)
C32 22P
L8 100μ
C30 33P
C29 680P
C31 18P
R29 10K
C34 0. 01
Q10 2SC3930 (AMP)
R18 1K
Q5 2SD1819 (VHS CASS:ON)
L30 5. 6μ
C14 0. 01
C117 47P
C15 220P
Q8 2SB1218 (MIX)
R5 47K
R12 390
L4 180μ
L31 3. 9μ
L34 33μ
Q6 2SD1819 (AMP)
C16 330P
C118 12P
C126 47P
C17 33P
R13 470
R154 820
R16 680
R14 1K
R15 10K
R17 6800
Q7 2SD1819 (AMP)
C19 0. 01
VR3 2KB
S-VHS REC-Y
R25 390
C26 8P
C27 56P
R143 820
L7 27μ
R144 820
Q9 2SB1218 (AMP)
R28 820
C33 150P
L10 6. 8μ
C36 22P
R30 1500
C35 10P
R31 1K
C41 0. 01
VR4 500B
VR5 500B
LPQ
SPQ
R32 820
QR3 UN5211 (VHS CASS:ON)
QR4 DTC363EK (LP:ON)
QR5 DTC363EK (SP:ON)
D2 MA141K
R33 10K
QR6 UN511E (SP:ON)
QR2 UN5213 (MESECAM:ON)
C57 1
R20 0
TL30007
C22 56P
L5 33μ
C25 390P
C28 0. 01
L6 180μ
C20 16V47
C21 0. 1
D1 MA141K
R22 100
C23 50V3. 3
C24 0. 01
TL30009
R24 10K
R21 56K
IC1 M52083FP
VCC
6dB
LP
SP
DET
GCA4
LOG
DET
DET
PEAKING
S-VHS
VHS
S-VHS ON
VHS ON
GCA2
GCA3
DL1
DL2
DL3
DL4
DC AMP
CONT DLY
6dB
S-VHS
VHS
HPF
GCA1
LIM2
LIM1
S-VHS
VHS
GND
PB VCC
R45 4700
R46 5600
C49 0. 01
C37 0. 01
COS EQ
C50 0. 01
C51 0. 01
VR6 10KB
FO
VR7 20KB
R47 4700
R34 2700
R52 1K
FL1 VLF1141
C38 0. 01
R36 39K
R54 1K
C40 0. 01
TL30001
TL30002
R35 10K
C39 0. 01
C135 5P
R37 470
L11 39μ
C42 18P
R40 1K
C43 0. 01
L12 15μ
Q13 2SC3930 (AMP)
Q14 2SC3930 (AMP)
C44 10P
C45 82P
R41 1K
R39 1500
R38 560
R42 1K
L13 12μ
C48 15P
R44 1500
C47 0. 01
R43 820
QR7 UN5211 (LP Ⓗ:ON)
C52 0. 1
TL30003
R53 330
R49 1K
C53 39P
L14 39μ
C55 47P
R51 3300
C54 10P
L15 10μ
R50 1500
Q15 2SB1218 (AMP)
L16 39μ
R55 10K
R56 10K
R57 10K
C56 0. 01
R58 4700
IC2 MC14066BFL1
R59 10K
QR13 UN5112 (MESECAM:ON)
QR9 XN1213 (EE Ⓗ:ON)
QR12 UN5213 (MESECAM Ⓗ:ON)
QR32 UN5113 (PB AI1 Ⓗ:OFF)
R161 3300
D15 MA141K
R159 10K
QR10 UN511D (AI ONⒽ:OFF)
D5 MA141WK
D4 MA141WK
QR11 UN5113 (NTSC Ⓛ:ON)
QR8 UN5213 (EDIT Ⓗ:ON)
D16 MA141WK
QR33 UN5213 (INV.)
D3 MA141WK
R60 10K
QR29 UN511D (AI ON Ⓗ/LP Ⓗ:OFF)

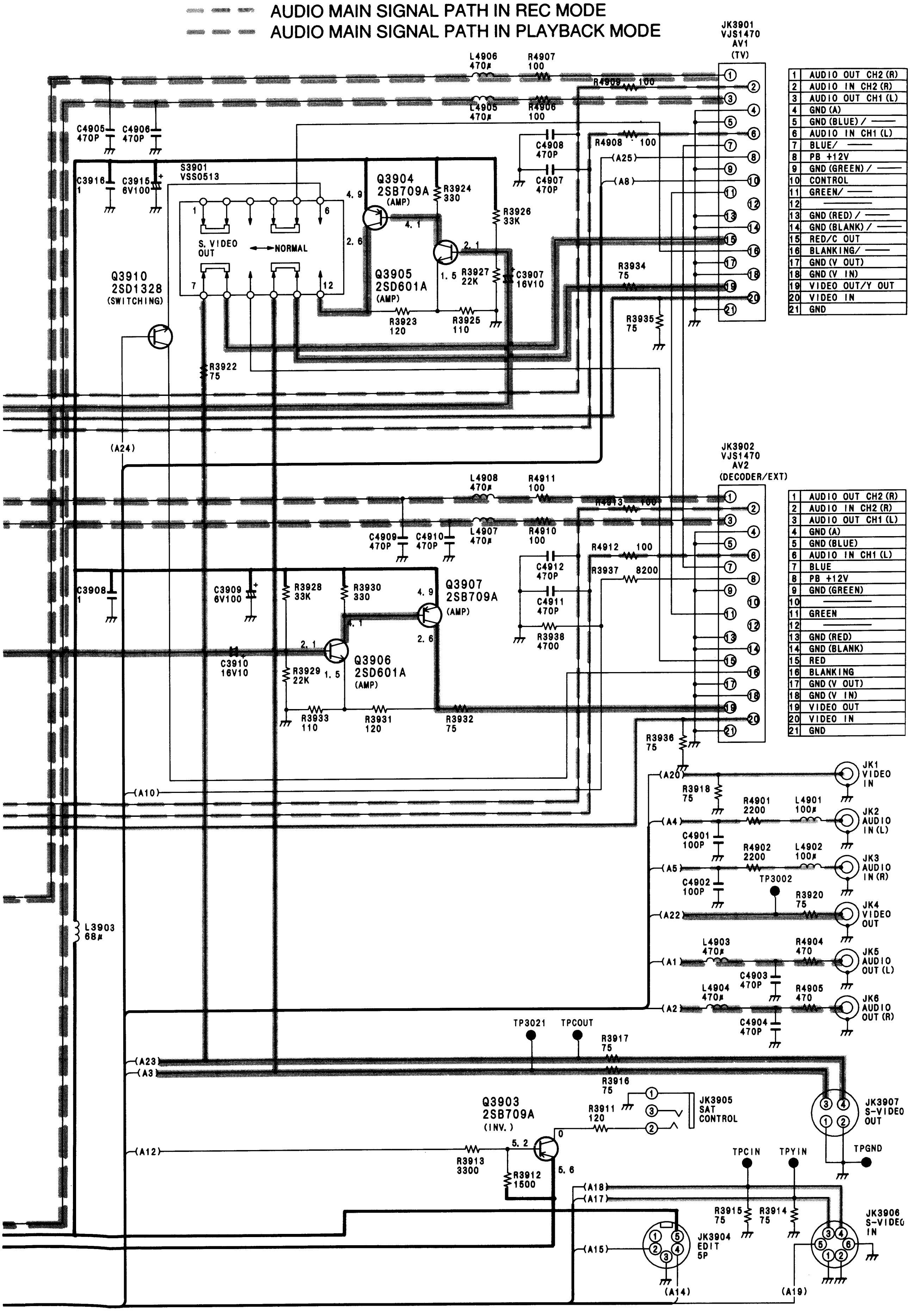
IC30001-28 PLAY
300mVp-p (20μsec. div.)
IC30001-30 PLAY
200mVp-p (20μsec. div.)

IC30001-19, 21, 23 REC
200mVp-p (20μsec. div.)

IC30001-14 PLAY
100mVp-p (20μsec. div.)

IC30001-2 PLAY
400mVp-p (20μsec. div.)
IC30001-8 PLAY
200mVp-p (20μsec. div.)

AUDIO MAIN SIGNAL PATH IN REC MODE
AUDIO MAIN SIGNAL PATH IN PLAYBACK MODE

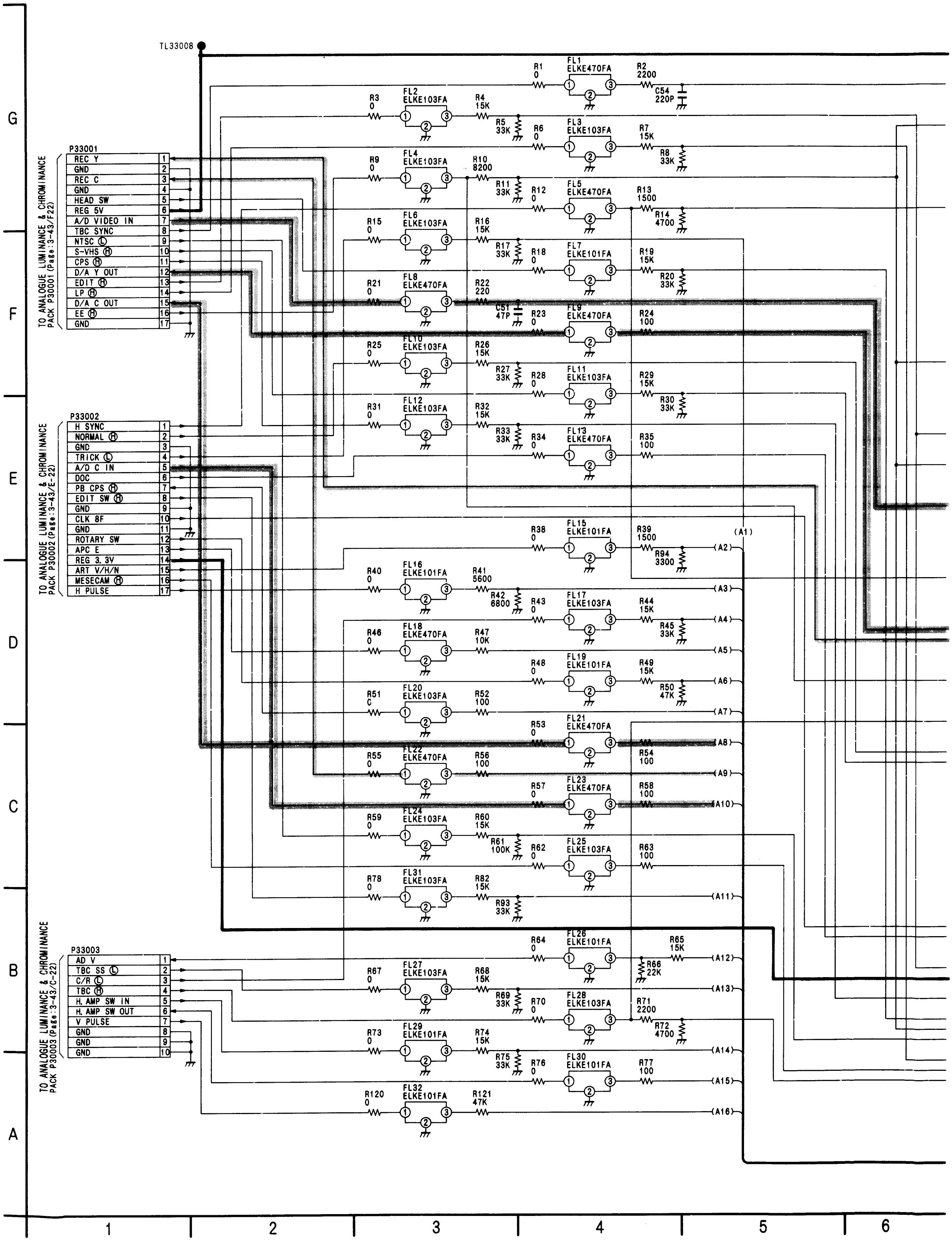

JK3901
VJS1470
AV1
(TV)
L4906 470μ
R4907 100
R4909 100
L4905 470μ
R4906 100
C4905 470P
C4906 470P
C4908 470P
R4908 100
(A25)
C4907 470P
(A8)
C3916 1
C3915 6V100
S3901 VSS0513
S. VIDEO OUT
NORMAL
Q3904 2SB709A (AMP)
R3924 330
R3926 33K
Q3905 2SD601A (AMP)
R3927 22K
C3907 16V10
R3923 120
R3925 110
R3934 75
R3935 75
Q3910 2SD1328 (SWITCHING)
R3922 75
(A24)
JK3902
VJS1470
AV2
(DECODER/EXT)
L4908 470μ
R4911 100
R4913 100
C4909 470P
C4910 470P
L4907 470μ
R4910 100
R4912 100
C4912 470P
R3937 8200
C4911 470P
R3938 4700
C3908 1
C3909 6V100
R3928 33K
R3930 330
Q3907 2SB709A (AMP)
C3910 16V10
R3929 22K
Q3906 2SD601A (AMP)
R3933 110
R3931 120
R3932 75
R3936 75
(A10)
(A20)
R3918 75
JK1 VIDEO IN
(A4)
R4901 2200
L4901 100μ
JK2 AUDIO IN (L)
C4901 100P
(A5)
R4902 2200
L4902 100μ
JK3 AUDIO IN (R)
C4902 100P
TP3002
R3920 75
(A22)
JK4 VIDEO OUT
L3903 68μ
L4903 470μ
R4904 470
(A1)
JK5 AUDIO OUT (L)
C4903 470P
L4904 470μ
R4905 470
(A2)
JK6 AUDIO OUT (R)
C4904 470P
TP3021
TPCOUT
R3917 75
(A23)
(A3)
R3916 75
JK3907 S-VIDEO OUT
Q3903 2SB709A (INV.)
R3911 120
JK3905 SAT CONTROL
(A12)
R3913 3300
R3912 1500
TPCIN
TPYIN
TPGND
(A18)
(A17)
R3915 75
R3914 75
JK3906 S-VIDEO IN
(A15)
JK3904 EDIT 5P
(A14)
(A19)
10
11
12
13
14

1	AUDIO OUT CH2 (R)
2	AUDIO IN CH2 (R)
3	AUDIO OUT CH1 (L)
4	GND (A)
5	GND (BLUE) / ——
6	AUDIO IN CH1 (L)
7	BLUE/ ——
8	PB +12V
9	GND (GREEN) / ——
10	CONTROL
11	GREEN/ ——
12	——
13	GND (RED) / ——
14	GND (BLANK) / ——
15	RED/C OUT
16	BLANKING/ ——
17	GND (V OUT)
18	GND (V IN)
19	VIDEO OUT/Y OUT
20	VIDEO IN
21	GND

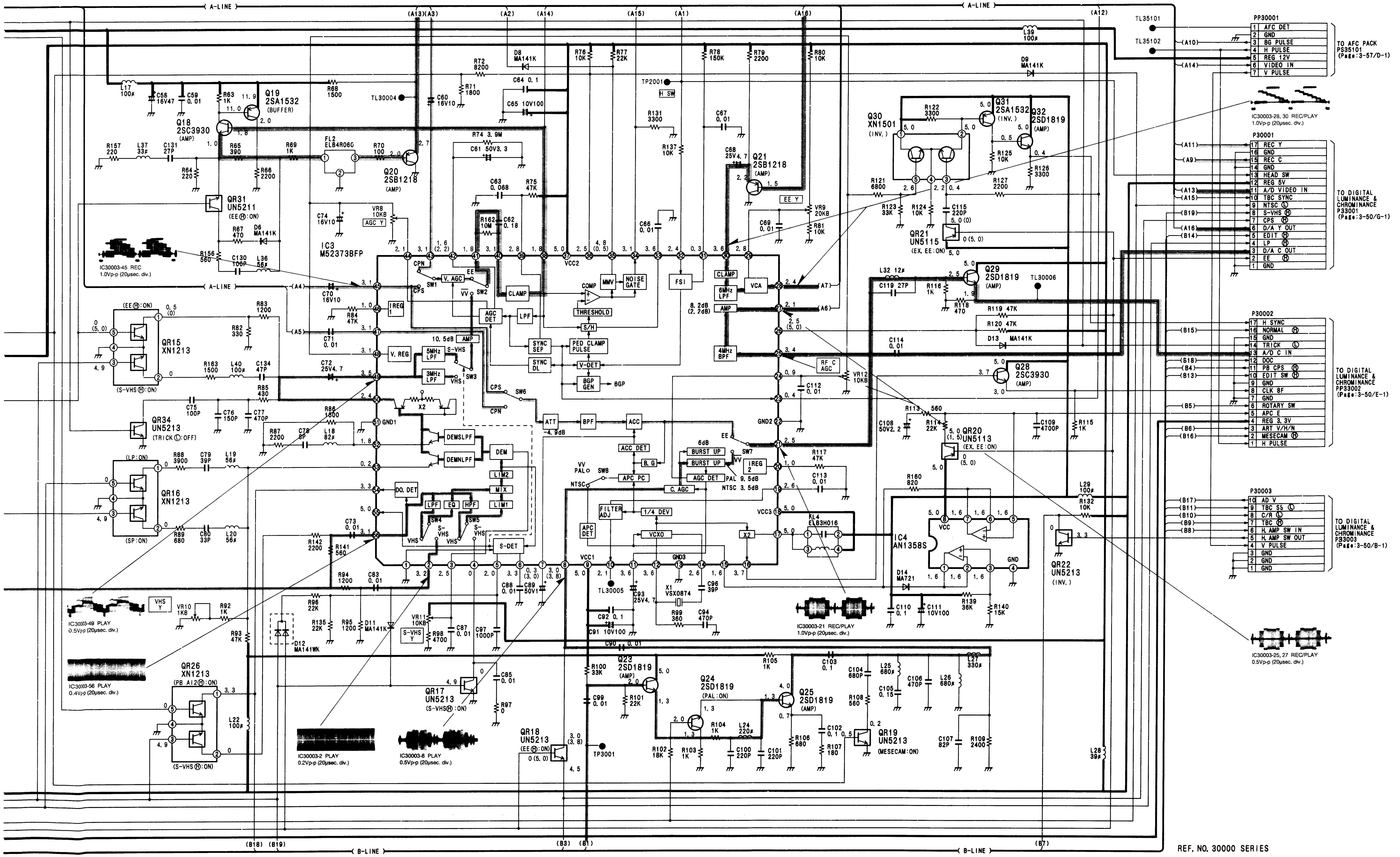
1	AUDIO OUT CH2 (R)
2	AUDIO IN CH2 (R)
3	AUDIO OUT CH1 (L)
4	GND (A)
5	GND (BLUE)
6	AUDIO IN CH1 (L)
7	BLUE
8	PB +12V
9	GND (GREEN)
10	——
11	GREEN
12	——
13	GND (RED)
14	GND (BLANK)
15	RED
16	BLANKING
17	GND (V OUT)
18	GND (V IN)
19	VIDEO OUT
20	VIDEO IN
21	GND

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

3-15. DIGITAL LUMINANCE & CHROMINANCE SCHEMATIC DIAGRAM [REF. NO. 33000 SERIES]


TL33008
P33001
REC Y
GND
REC C
GND
HEAD SW
REG 5V
A/D VIDEO IN
TBC SYNC
NTSC Ⓛ
S-VHS Ⓗ
CPS Ⓗ
D/A Y OUT
EDIT Ⓗ
LP Ⓗ
D/A C OUT
EE Ⓗ
GND
TO ANALOGUE LUMINANCE & CHROMINANCE PACK P30001 (Page:3-43/F22)
P33002
H SYNC
NORMAL Ⓗ
GND
TRICK Ⓛ
A/D C IN
DOC
PB CPS Ⓗ
EDIT SW Ⓗ
GND
CLK 8F
GND
ROTARY SW
APC E
REG 3.3V
ART V/H/N
MESECAM Ⓗ
H PULSE
TO ANALOGUE LUMINANCE & CHROMINANCE PACK P30002 (Page:3-43/E-22)
P33003
AD V
TBC SS Ⓛ
C/R Ⓛ
TBC Ⓗ
H. AMP SW IN
H. AMP SW OUT
V PULSE
GND
GND
GND
TO ANALOGUE LUMINANCE & CHROMINANCE PACK P30003 (Page:3-43/C-22)
R1 0
FL1 ELKE470FA
R2 2200
C54 220P
R3 0
FL2 ELKE103FA
R4 15K
R5 33K
R6 0
FL3 ELKE103FA
R7 15K
R8 33K
R9 0
FL4 ELKE103FA
R10 8200
R11 33K
R12 0
FL5 ELKE470FA
R13 1500
R14 4700
R15 0
FL6 ELKE103FA
R16 15K
R17 33K
R18 0
FL7 ELKE101FA
R19 15K
R20 33K
R21 0
FL8 ELKE470FA
R22 220
C51 47P
R23 0
FL9 ELKE470FA
R24 100
R25 0
FL10 ELKE103FA
R26 15K
R27 33K
R28 0
FL11 ELKE103FA
R29 15K
R30 33K
R31 0
FL12 ELKE103FA
R32 15K
R33 33K
R34 0
FL13 ELKE470FA
R35 100
R38 0
FL15 ELKE101FA
R39 1500
R94 3300
(A1)
(A2)
R40 0
FL16 ELKE101FA
R41 5600
R42 6800
R43 0
FL17 ELKE103FA
R44 15K
R45 33K
(A3)
(A4)
R46 0
FL18 ELKE470FA
R47 10K
(A5)
R48 0
FL19 ELKE101FA
R49 15K
R50 47K
(A6)
R51 C
FL20 ELKE103FA
R52 100
(A7)
R53 0
FL21 ELKE470FA
R54 100
(A8)
R55 0
FL22 ELKE470FA
R56 100
(A9)
R57 0
FL23 ELKE470FA
R58 100
(A10)
R59 0
FL24 ELKE103FA
R60 15K
R61 100K
R62 0
FL25 ELKE103FA
R63 100
R78 0
FL31 ELKE103FA
R82 15K
R93 33K
(A11)
R64 0
FL26 ELKE101FA
R65 15K
R66 22K
(A12)
R67 0
FL27 ELKE103FA
R68 15K
R69 33K
R70 0
FL28 ELKE103FA
R71 2200
R72 4700
(A13)
R73 0
FL29 ELKE101FA
R74 15K
R75 33K
R76 0
FL30 ELKE101FA
R77 100
(A14)
(A15)
R120 0
FL32 ELKE101FA
R121 47K
(A16)
G
F
E
D
C
B
A
1
2
3
4
5
6

MAIN SIGNAL PATH IN REC MODE MAIN SIGNAL PATH IN PLAYBACK MODE


A-LINE
B-LINE
IC3 M52373BFP
IC4 AN1358S
Q18 2SC3930 (AMP)
Q19 2SA1532 (BUFFER)
Q20 2SB1218 (AMP)
Q21 2SB1218 (AMP)
Q23 2SD1819 (AMP)
Q24 2SD1819 (PAL:ON)
Q25 2SD1819 (AMP)
Q28 2SC3930 (AMP)
Q29 2SD1819 (AMP)
Q30 XN1501 (INV.)
Q31 2SA1532 (INV.)
Q32 2SD1819 (AMP)
QR15 XN1213
QR16 XN1213
QR17 UN5213 (S-VHS Ⓗ:ON)
QR18 UN5213
QR19 UN5213 (MESECAM:ON)
QR20 UN5113 (EX. EE:ON)
QR21 UN5115 (EX. EE:ON)
QR22 UN5213 (INV.)
QR26 XN1213 (PB A12Ⓗ:ON)
QR31 UN5211 (EEⒽ:ON)
QR34 UN5213 (TRICK Ⓛ:OFF)
FL2 ELB4R06G
FL4 ELB3H016
X1 VSX0874
TL35101
TL35102
TL30004
TL30005
TL30006
TP2001
TP3001
PP30001
1 AFC DET
2 GND
3 BG PULSE
4 H PULSE
5 REG 12V
6 VIDEO IN
7 V PULSE
TO AFC PACK PS35101 (Page:3-57/D-1)
P30001
17 REC Y
16 GND
15 REC C
14 GND
13 HEAD SW
12 REG 5V
11 A/D VIDEO IN
10 TBC SYNC
9 NTSC Ⓛ
8 S-VHS Ⓗ
7 CPS Ⓗ
6 D/A Y OUT
5 EDIT Ⓗ
4 LP Ⓗ
3 D/A C OUT
2 EE Ⓗ
1 GND
TO DIGITAL LUMINANCE & CHROMINANCE P33001 (Page:3-50/G-1)
P30002
17 H SYNC
16 NORMAL Ⓗ
15 GND
14 TRICK Ⓛ
13 A/D C IN
12 DOC
11 PB CPS Ⓗ
10 EDIT SW Ⓗ
9 GND
8 CLK 8F
7 GND
6 ROTARY SW
5 APC E
4 REG 3.3V
3 ART V/H/N
2 MESECAM Ⓗ
1 H PULSE
TO DIGITAL LUMINANCE & CHROMINANCE PP33002 (Page:3-50/E-1)
P30003
10 AD V
9 TBC SS Ⓛ
8 C/R Ⓛ
7 TBC Ⓗ
6 H. AMP SW IN
5 H. AMP SW OUT
4 V PULSE
3 GND
2 GND
1 GND
TO DIGITAL LUMINANCE & CHROMINANCE P33003 (Page:3-50/B-1)
IC30003-45 REC 1.0Vp-p (20μsec. div.)
IC30003-49 PLAY 0.5Vp-p (20μsec. div.)
IC30003-56 PLAY 0.4Vp-p (20μsec. div.)
IC30003-2 PLAY 0.2Vp-p (20μsec. div.)
IC30003-8 PLAY 0.5Vp-p (20μsec. div.)
IC30003-21 REC/PLAY 1.0Vp-p (20μsec. div.)
IC30003-25, 27 REC/PLAY 0.5Vp-p (20μsec. div.)
IC30003-28, 30 REC/PLAY 1.0Vp-p (20μsec. div.)
V. AGC
CLAMP
AGC DET
LPF
SYNC SEP
SYNC DL
PED CLAMP PULSE
V-DET
BGP GEN
THRESHOLD
S/H
COMP
MMV
NOISE GATE
FSI
6MHz LPF
VCA
AMP
4MHz BPF
RF C AGC
IREG
V. REG
5MHz LPF
3MHz LPF
DEMSLPF
DEMNLPF
DEM
LIM2
MIX
LIM1
DO. DET
S-DET
ATT
BPF
ACC
ACC DET
B. G
BURST UP
AGC DET
C. AGC
APC PC
1/4 DEV
FILTER ADJ
APC DET
VCXO
X2
VCC1
VCC2
VCC3
GND1
GND2
GND3
SW1
SW2
SW3
SW4
SW5
SW6
SW7
SW8

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS ( ) ON THIS DIAGRAM IS RECORD MODE WITH PAL COLOUR SIGNAL. (S-VHS:SP MODE)

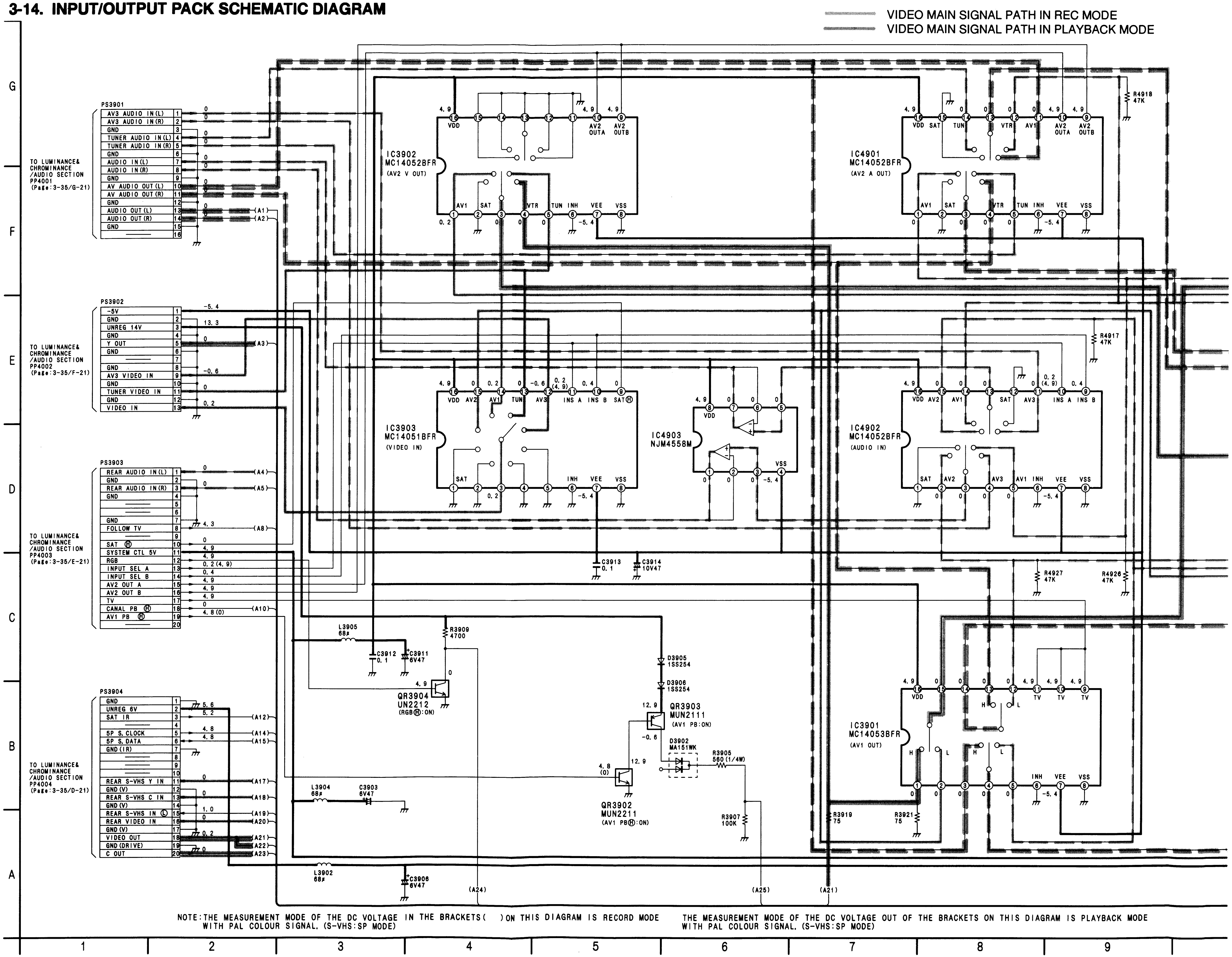
THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE WITH PAL COLOUR SIGNAL. (S-VHS:SP MODE)

REF. NO. 30000 SERIES

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

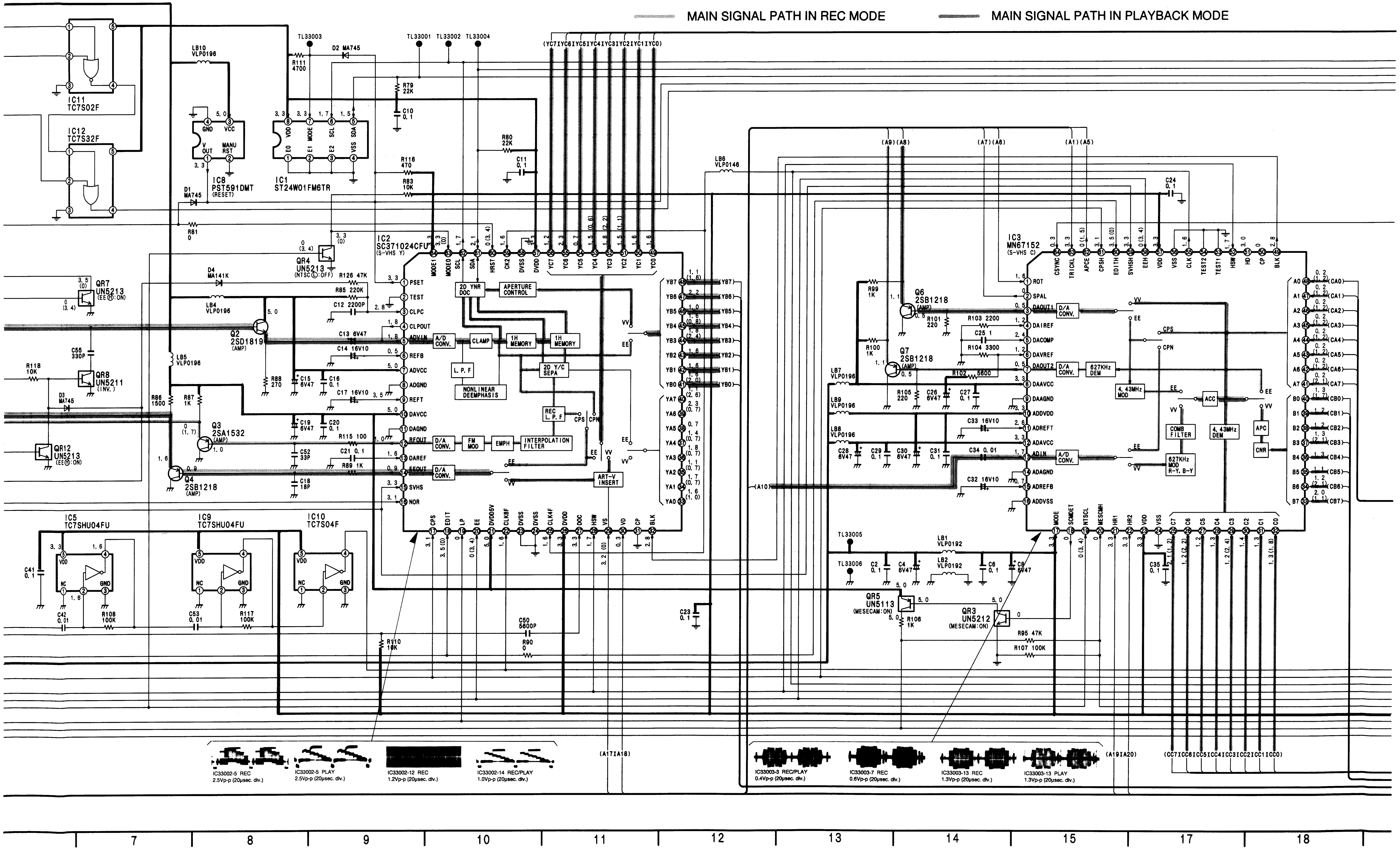
12	13	14	15	16	17	18	19	20	21	22

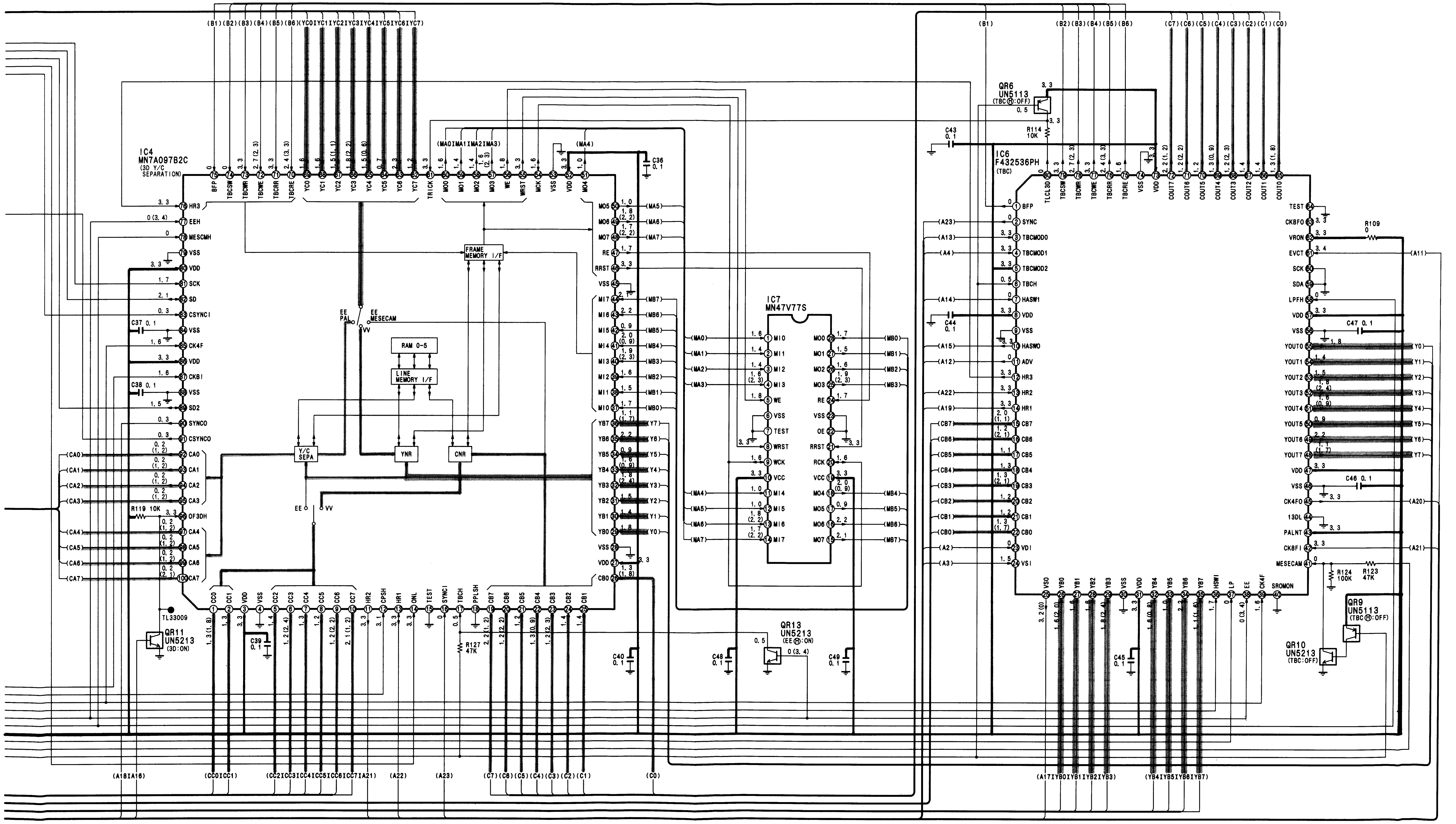
3-14. INPUT/OUTPUT PACK SCHEMATIC DIAGRAM


VIDEO MAIN SIGNAL PATH IN REC MODE
VIDEO MAIN SIGNAL PATH IN PLAYBACK MODE
G
F
E
D
C
B
A
PS3901
AV3 AUDIO IN(L) 1
AV3 AUDIO IN(R) 2
GND 3
TUNER AUDIO IN(L) 4
TUNER AUDIO IN(R) 5
GND 6
AUDIO IN(L) 7
AUDIO IN(R) 8
GND 9
AV AUDIO OUT(L) 10
AV AUDIO OUT(R) 11
GND 12
AUDIO OUT(L) 13
AUDIO OUT(R) 14
GND 15
16
TO LUMINANCE& CHROMINANCE /AUDIO SECTION PP4001 (Page:3-35/G-21)
(A1)
(A2)
PS3902
-5V 1
GND 2
UNREG 14V 3
GND 4
Y OUT 5
GND 6
7
GND 8
AV3 VIDEO IN 9
GND 10
TUNER VIDEO IN 11
GND 12
VIDEO IN 13
TO LUMINANCE& CHROMINANCE /AUDIO SECTION PP4002 (Page:3-35/F-21)
-5.4
13.3
-0.6
0.2
(A3)
PS3903
REAR AUDIO IN(L) 1
GND 2
REAR AUDIO IN(R) 3
GND 4
5
6
GND 7
FOLLOW TV 8
9
SAT Ⓗ 10
SYSTEM CTL 5V 11
RGB 12
INPUT SEL A 13
INPUT SEL B 14
AV2 OUT A 15
AV2 OUT B 16
TV 17
CANAL PB Ⓗ 18
AV1 PB Ⓗ 19
20
TO LUMINANCE& CHROMINANCE /AUDIO SECTION PP4003 (Page:3-35/E-21)
4.3
4.9
0.2(4.9)
0.4
4.8(0)
(A4)
(A5)
(A8)
(A10)
PS3904
GND 1
UNREG 6V 2
SAT IR 3
4
5P S.CLOCK 5
5P S.DATA 6
GND(IR) 7
8
9
10
REAR S-VHS Y IN 11
GND(V) 12
REAR S-VHS C IN 13
GND(V) 14
REAR S-VHS IN Ⓛ 15
REAR VIDEO IN 16
GND(V) 17
VIDEO OUT 18
GND(DRIVE) 19
C OUT 20
TO LUMINANCE& CHROMINANCE /AUDIO SECTION PP4004 (Page:3-35/D-21)
5.6
5.2
4.8
1.0
(A12)
(A14)
(A15)
(A17)
(A18)
(A19)
(A20)
(A21)
(A22)
(A23)
IC3902
MC14052BFR
(AV2 V OUT)
VDD
AV2 OUTA
AV2 OUTB
AV1
SAT
VTR
TUN
INH
VEE
VSS
IC4901
MC14052BFR
(AV2 A OUT)
VDD
SAT
TUN
VTR
AV1
AV2 OUTA
AV2 OUTB
R4918 47K
IC3903
MC14051BFR
(VIDEO IN)
VDD
AV2
AV1
TUN
AV3
INS A
INS B
SATⒽ
SAT
INH
VEE
VSS
IC4903
NJM4558M
VDD
VSS
IC4902
MC14052BFR
(AUDIO IN)
VDD
AV2
AV1
SAT
AV3
INS A
INS B
R4917 47K
C3913 0.1
C3914 10V47
R4927 47K
R4926 47K
L3905 68μ
C3912 0.1
C3911 6V47
R3909 4700
QR3904
UN2212
(RGBⒽ:ON)
D3905 1SS254
D3906 1SS254
QR3903
MUN2111
(AV1 PB:ON)
D3902 MA151WK
R3905 560(1/4W)
QR3902
MUN2211
(AV1 PBⒽ:ON)
R3907 100K
IC3901
MC14053BFR
(AV1 OUT)
VDD
TV
H
L
INH
VEE
VSS
R3919 75
R3921 75
L3904 68μ
C3903 6V47
L3902 68μ
C3906 6V47
(A24)
(A25)
(A21)
1
2
3
4
5
6
7
8
9

NOTE:THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS( )ON THIS DIAGRAM IS RECORD MODE WITH PAL COLOUR SIGNAL, (S-VHS:SP MODE)

THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE WITH PAL COLOUR SIGNAL, (S-VHS:SP MODE)


MAIN SIGNAL PATH IN REC MODE
MAIN SIGNAL PATH IN PLAYBACK MODE
IC11 TC7S02F
IC12 TC7S32F
LB10 VLP0196
IC8 PST591DMT (RESET)
IC1 ST24W01FM6TR
TL33003
TL33001 TL33002 TL33004
D2 MA745
R111 4700
R79 22K
C10 0.1
R80 22K
C11 0.1
R116 470
R83 10K
D1 MA745
R81 0
QR4 UN5213 (NTSC Ⓗ:OFF)
IC2 SC371024CFU (S-VHS Y)
QR7 UN5213 (EE Ⓗ:ON)
D4 MA141K
LB4 VLP0196
Q2 2SD1819 (AMP)
C55 330P
R118 10K
QR8 UN5211 (INV.)
D3 MA745
LB5 VLP0196
R86 1500
R87 1K
Q3 2SA1532 (AMP)
QR12 UN5213 (EE Ⓗ:ON)
Q4 2SB1218 (AMP)
R126 47K
R85 220K
C12 2200P
C13 6V47
C14 16V10
R88 270
C15 6V47
C16 0.1
C17 16V10
C19 6V47
C20 0.1
R115 100
C21 0.1
C52 33P
R89 1K
C18 18P
2D YNR DOC
APERTURE CONTROL
A/D CONV.
CLAMP
1H MEMORY
1H MEMORY
L.P.F
NONLINEAR DEEMPHASIS
2D Y/C SEPA
REC L.P.F
D/A CONV.
FM MOD
EMPH
INTERPOLATION FILTER
ART-V INSERT
IC5 TC7SHU04FU
IC9 TC7SHU04FU
IC10 TC7S04F
C41 0.1
C42 0.01
R108 100K
C53 0.01
R117 100K
R110 10K
C50 5600P
R90 0
C23 0.1
LB6 VLP0146
C24 0.1
IC3 MN67152 (S-VHS C)
R99 1K
Q6 2SB1218 (AMP)
R101 220
R100 1K
Q7 2SB1218 (AMP)
R103 2200
C25 1
R104 3300
R102 5600
LB7 VLP0196
LB9 VLP0196
LB8 VLP0196
R105 220
C26 6V47
C27 0.1
C28 6V47
C29 0.1
C30 6V47
C31 0.1
C33 16V10
C34 0.01
C32 16V10
627KHz DEM
4.43MHz MOD
ACC
COMB FILTER
4.43MHz DEM
APC
CNR
627KHz MOD R-Y, B-Y
TL33005
TL33006
LB1 VLP0192
LB2 VLP0192
C2 0.1
C4 6V47
C6 0.1
C8 6V47
C35 0.1
QR5 UN5113 (MESECAM:ON)
R106 1K
QR3 UN5212 (MESECAM:ON)
R95 47K
R107 100K
(YC7)(YC6)(YC5)(YC4)(YC3)(YC2)(YC1)(YC0)
(A9)(A8) (A7)(A6) (A1)(A5)
(A10)
(A17)(A18)
(A19)(A20)
(CC7)(CC6)(CC5)(CC4)(CC3)(CC2)(CC1)(CC0)
IC33002-5 REC 2.5Vp-p (20μsec. div.)
IC33002-5 PLAY 2.5Vp-p (20μsec. div.)
IC33002-12 REC 1.2Vp-p (20μsec. div.)
IC33002-14 REC/PLAY 1.0Vp-p (20μsec. div.)
IC33003-3 REC/PLAY 0.4Vp-p (20μsec. div.)
IC33003-7 REC 0.6Vp-p (20μsec. div.)
IC33003-13 REC 1.3Vp-p (20μsec. div.)
IC33003-13 PLAY 1.3Vp-p (20μsec. div.)
7
8
9
10
11
12
13
14
15
17
18


IC4
MN7A097B2C
(3D Y/C SEPARATION)
FRAME MEMORY I/F
RAM 0-5
LINE MEMORY I/F
Y/C SEPA
YNR
CNR
EE PAL
EE MESECAM
IC7
MN47V77S
IC6
F432536PH
(TBC)
QR6
UN5113
(TBC ⓗ:OFF)
R114
10K
C43
0.1
C44
0.1
R109
0
C47 0.1
C46 0.1
R124
100K
R123
47K
QR9
UN5113
(TBC ⓗ:OFF)
QR10
UN5213
(TBC:OFF)
QR11
UN5213
(3D:ON)
TL33009
R119 10K
C37 0.1
C38 0.1
C36
0.1
C39
0.1
R127
47K
C40
0.1
C48
0.1
QR13
UN5213
(EE ⓗ:ON)
C49
0.1
C45
0.1
(A18IA16)
(CC0ICC1)
(CC2ICC3ICC4ICC5ICC6ICC7IA21)
(A22)
(A23)
(C7)(C6)(C5)(C4)(C3)(C2)(C1)
(C0)
(A17IYB0IYB1IYB2IYB3)
(YB4IYB5IYB6IYB7)

NOTE:THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS ( )ON
THIS DIAGRAM IS RECORD MODE WITH PAL COLOUR SIGNAL. (S-VHS:SP MODE)

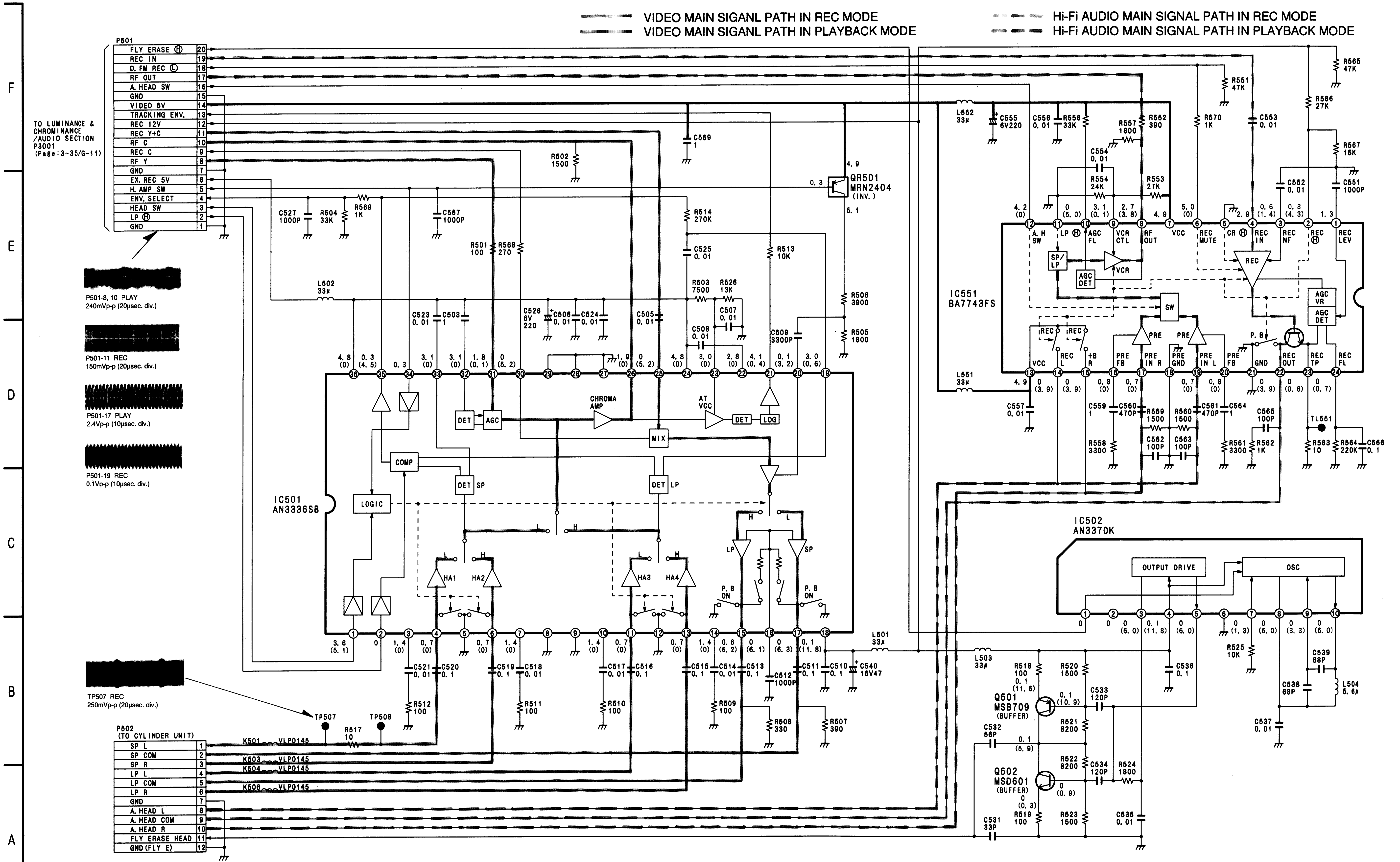
THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON
THIS DIAGRAM IS PLAYBACK MODE WITH PAL COLOUR SIGNAL. (S-VHS:SP MODE)

NOTE:DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR
ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

REF. NO. 33000 SERIES

19	20	21	22	23	24	25	26	27	28	29	30

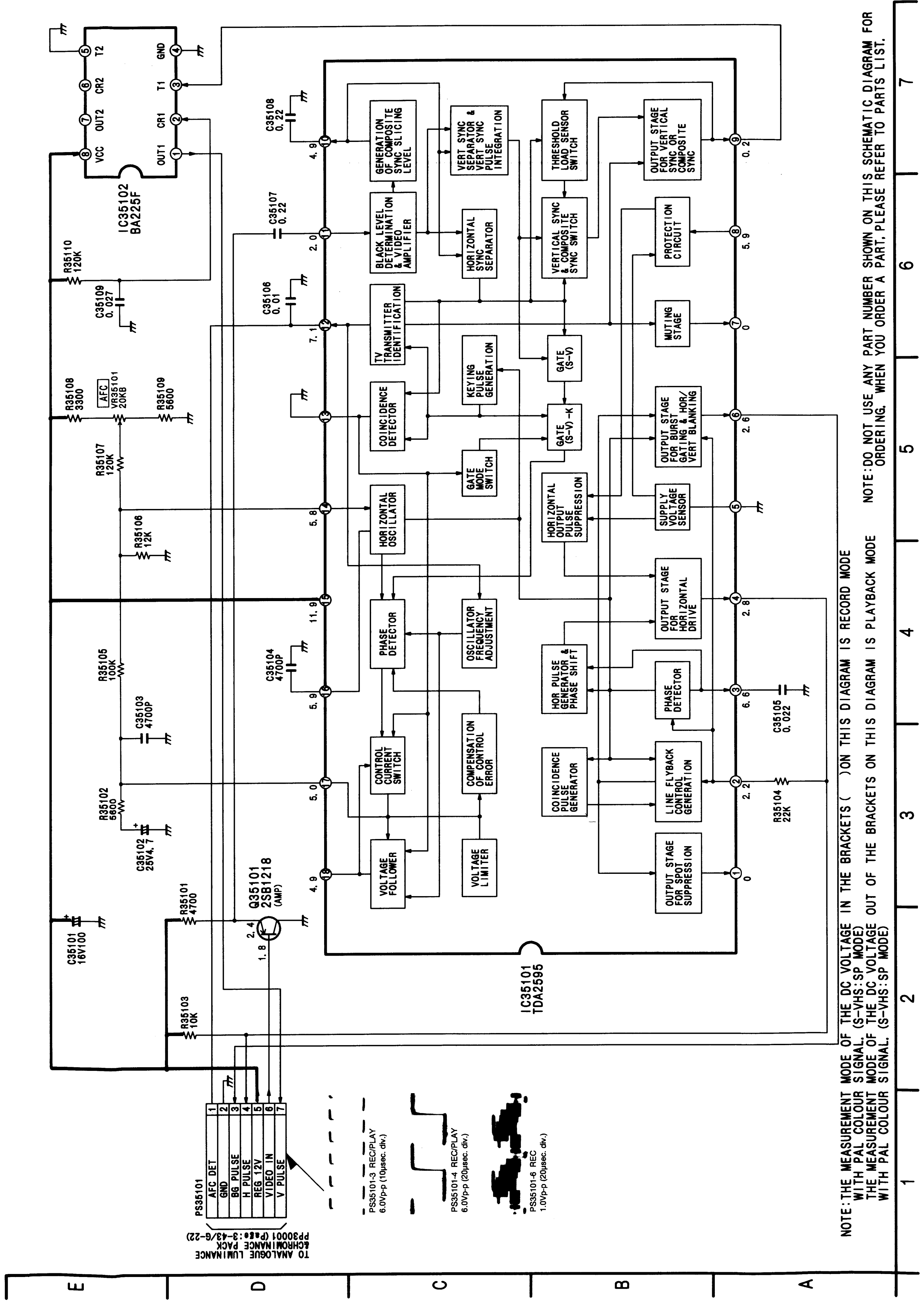
3-16. HEAD AMP SCHEMATIC DIAGRAM


VIDEO MAIN SIGANL PATH IN REC MODE
VIDEO MAIN SIGANL PATH IN PLAYBACK MODE
Hi-Fi AUDIO MAIN SIGNAL PATH IN REC MODE
Hi-Fi AUDIO MAIN SIGNAL PATH IN PLAYBACK MODE
P501
FLY ERASE Ⓗ 20
REC IN 19
D. FM REC Ⓛ 18
RF OUT 17
A. HEAD SW 16
GND 15
VIDEO 5V 14
TRACKING ENV. 13
REC 12V 12
REC Y+C 11
RF C 10
REC C 9
RF Y 8
GND 7
EX. REC 5V 6
H. AMP SW 5
ENV. SELECT 4
HEAD SW 3
LP Ⓗ 2
GND 1
TO LUMINANCE & CHROMINANCE /AUDIO SECTION P3001 (Page:3-35/G-11)
P501-8, 10 PLAY 240mVp-p (20μsec. div.)
P501-11 REC 150mVp-p (20μsec. div.)
P501-17 PLAY 2.4Vp-p (10μsec. div.)
P501-19 REC 0.1Vp-p (10μsec. div.)
TP507 REC 250mVp-p (20μsec. div.)
IC501 AN3336SB
DET
AGC
CHROMA AMP
AT VCC
DET
LOG
MIX
COMP
DET SP
DET LP
LOGIC
HA1
HA2
HA3
HA4
LP
SP
P. B ON
QR501 MRN2404 (INV.)
IC551 BA7743FS
A. H SW
LP Ⓗ
AGC FL
VCR CTL
RF OUT
VCC
REC MUTE
CR Ⓗ
REC IN
REC NF
REC Ⓗ
REC LEV
SP/LP
AGC DET
VCR
REC
AGC VR
AGC DET
SW
PRE
REC L
+B R
PRE FB
PRE IN R
PRE GND
PRE IN L
PRE FB
GND
REC OUT
REC TP
REC FL
P. B
TL551
IC502 AN3370K
OUTPUT DRIVE
OSC
Q501 MSB709 (BUFFER)
Q502 MSD601 (BUFFER)
L501 33μ
L502 33μ
L503 33μ
L504 5.6μ
L551 33μ
L552 33μ
TP507
TP508
R517 10
P502 (TO CYLINDER UNIT)
SP L 1
SP COM 2
SP R 3
LP L 4
LP COM 5
LP R 6
GND 7
A. HEAD L 8
A. HEAD COM 9
A. HEAD R 10
FLY ERASE HEAD 11
GND (FLY E) 12
K501 VLP0145
K503 VLP0145
K504 VLP0145
K506 VLP0145
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9

NOTE:THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS( ) ON
THIS DIAGRAM IS RECORD MODE WITH PAL COLOUR SIGNAL. (S-VHS:SP MODE)
THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON
THIS DIAGRAM IS PLAYBACK MODE WITH PAL COLOUR SIGNAL. (S-VHS:SP MODE)

NOTE:DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

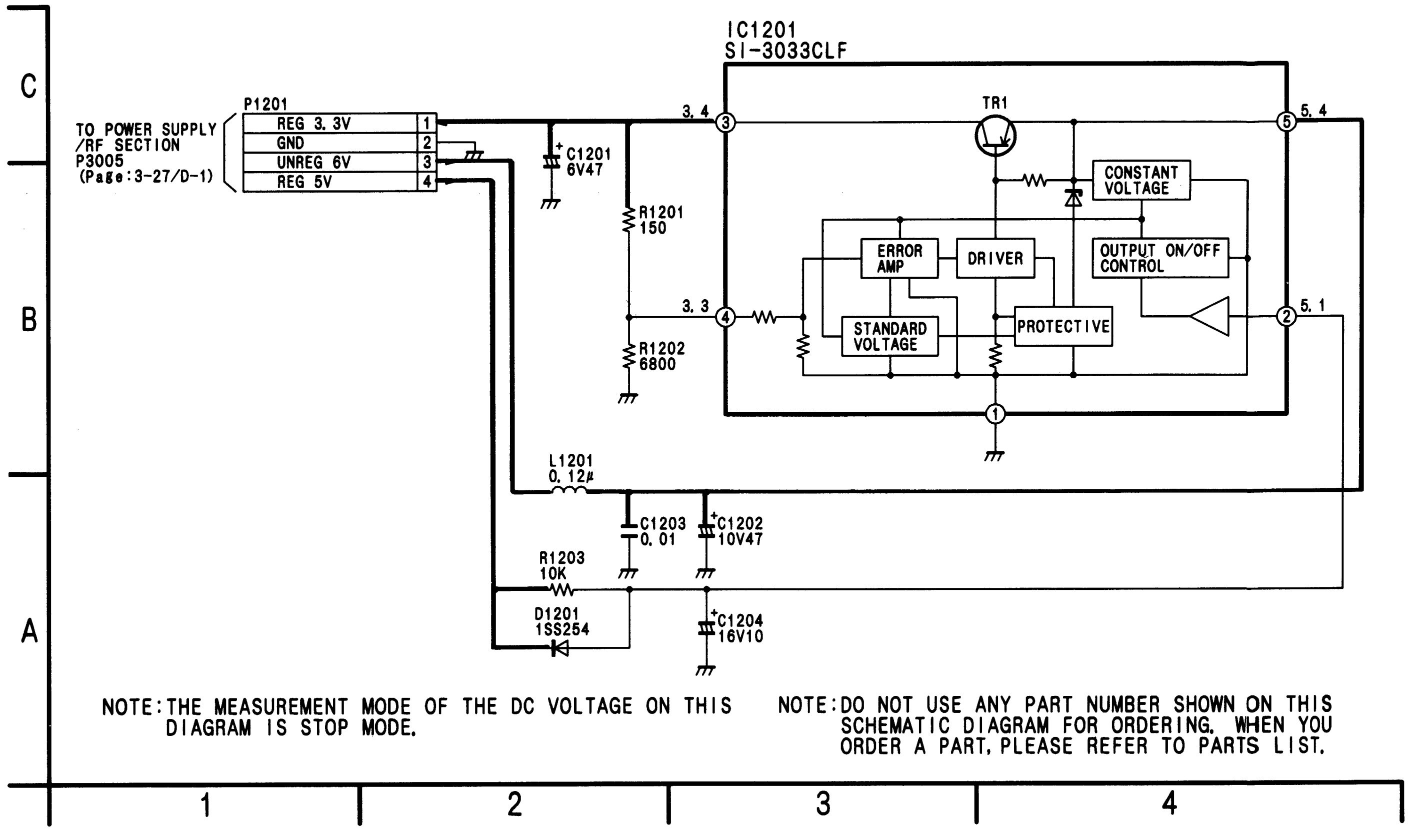
3-17. AFC PACK SCHEMATIC DIAGRAM


IC35102
BA225F
VCC
OUT2
CR2
T2
OUT1
CR1
T1
GND
R35110
120K
C35109
0.027
R35108
3300
AFC
VR35101
20KB
R35109
5600
R35107
120K
R35106
12K
R35105
100K
C35103
4700P
R35102
5600
C35102
25V4.7
C35101
16V100
R35101
4700
R35103
10K
Q35101
2SB1218
(AMP)
2.4
1.8
C35108
0.22
C35107
0.22
C35106
0.01
C35104
4700P
C35105
0.022
R35104
22K
4.9
2.0
7.1
5.8
11.9
5.9
5.0
4.9
0.2
5.9
0
2.6
2.8
6.6
2.2
0
GENERATION OF COMPOSITE SYNC SLICING LEVEL
VERT SYNC SEPARATOR & VERT SYNC PULSE INTEGRATION
THRESHOLD LOAD SENSOR SWITCH
OUTPUT STAGE FOR VERTICAL SYNC OR COMPOSITE SYNC
BLACK LEVEL DETERMINATION & VIDEO AMPLIFIER
HORIZONTAL SYNC SEPARATOR
VERTICAL SYNC & COMPOSITE SYNC SWITCH
PROTECTION CIRCUIT
TV TRANSMITTER IDENTIFICATION
KEYING PULSE GENERATION
GATE (S-V)
MUTING STAGE
COINCIDENCE DETECTOR
GATE (S-V)-K
OUTPUT STAGE FOR BURST GATING & HOR/VERT BLANKING
GATE MODE SWITCH
HORIZONTAL OSCILLATOR
HORIZONTAL OUTPUT PULSE SUPPRESSION
SUPPLY VOLTAGE SENSOR
OUTPUT STAGE FOR HORIZONTAL DRIVE
PHASE DETECTOR
OSCILLATOR FREQUENCY ADJUSTMENT
HOR PULSE GENERATOR & PHASE SHIFT
PHASE DETECTOR
CONTROL CURRENT SWITCH
COMPENSATION OF CONTROL ERROR
COINCIDENCE PULSE GENERATOR
LINE FLYBACK CONTROL GENERATION
VOLTAGE FOLLOWER
VOLTAGE LIMITER
OUTPUT STAGE FOR SPOT SUPPRESSION
IC35101
TDA2595
PS35101
AFC DET
GND
BG PULSE
H PULSE
REG 12V
VIDEO IN
V PULSE
TO ANALOGUE LUMINANCE &CHROMINANCE PACK PP30001 (Page:3-43/G-22)
PS35101-3 REC/PLAY 6.0Vp-p (10µsec. div.)
PS35101-4 REC/PLAY 6.0Vp-p (20µsec. div.)
PS35101-6 REC 1.0Vp-p (20µsec. div.)
E
D
C
B
A
1
2
3
4
5
6
7

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS ( ) ON THIS DIAGRAM IS RECORD MODE WITH PAL COLOUR SIGNAL. (S-VHS:SP MODE)
THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE WITH PAL COLOUR SIGNAL. (S-VHS:SP MODE)

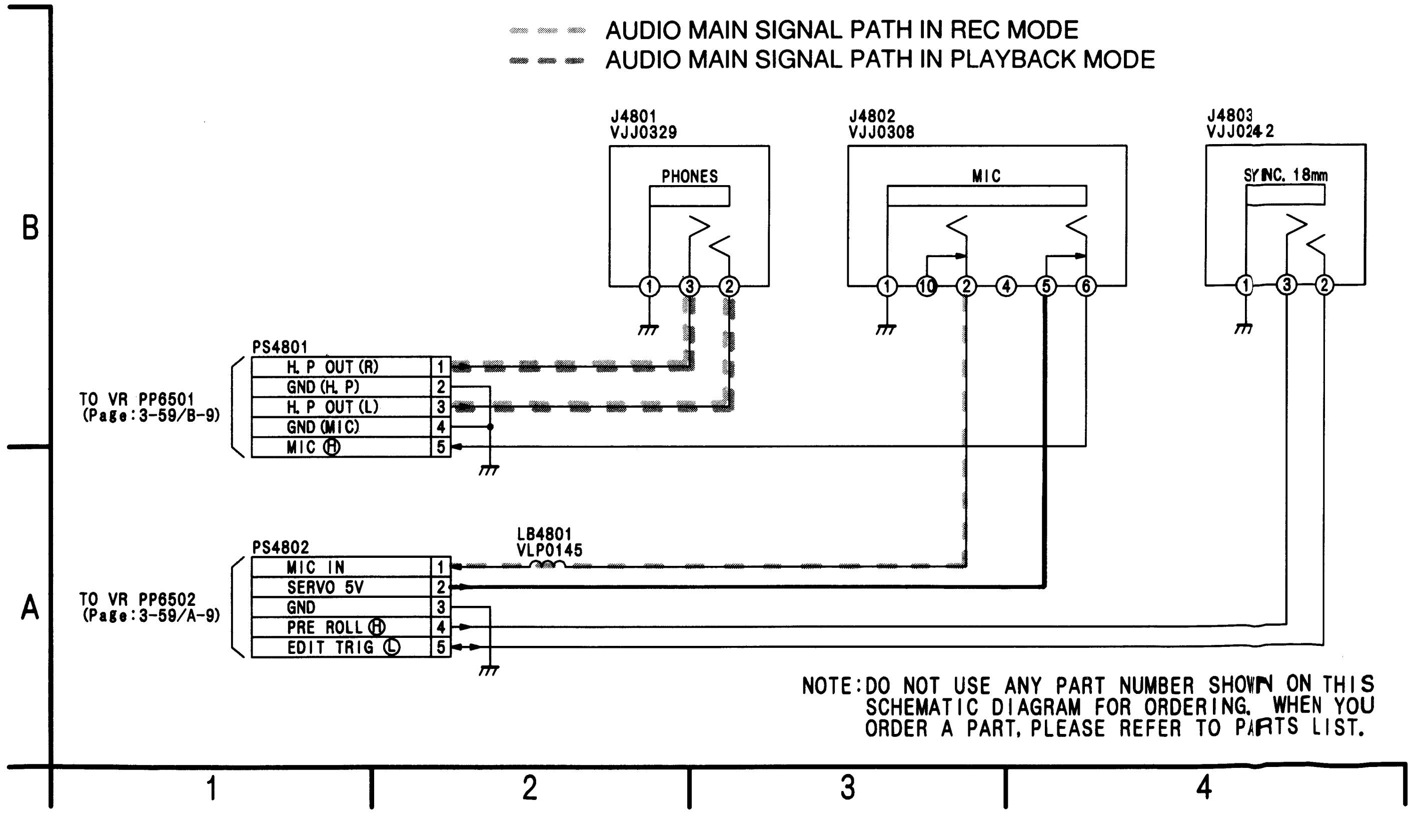
3-18. SUB POWER SCHEMATIC DIAGRAM


IC1201
SI-3033CLF
TO POWER SUPPLY /RF SECTION P3005 (Page:3-27/D-1)
P1201
REG 3.3V
GND
UNREG 6V
REG 5V
C1201
6V47
R1201
150
R1202
6800
L1201
0.12µ
C1203
0.01
C1202
10V47
R1203
10K
D1201
1SS254
C1204
16V10
TR1
CONSTANT VOLTAGE
ERROR AMP
DRIVER
OUTPUT ON/OFF CONTROL
STANDARD VOLTAGE
PROTECTIVE
3.4
5.4
3.3
5.1
C
B
A
1
2
3
4

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE.

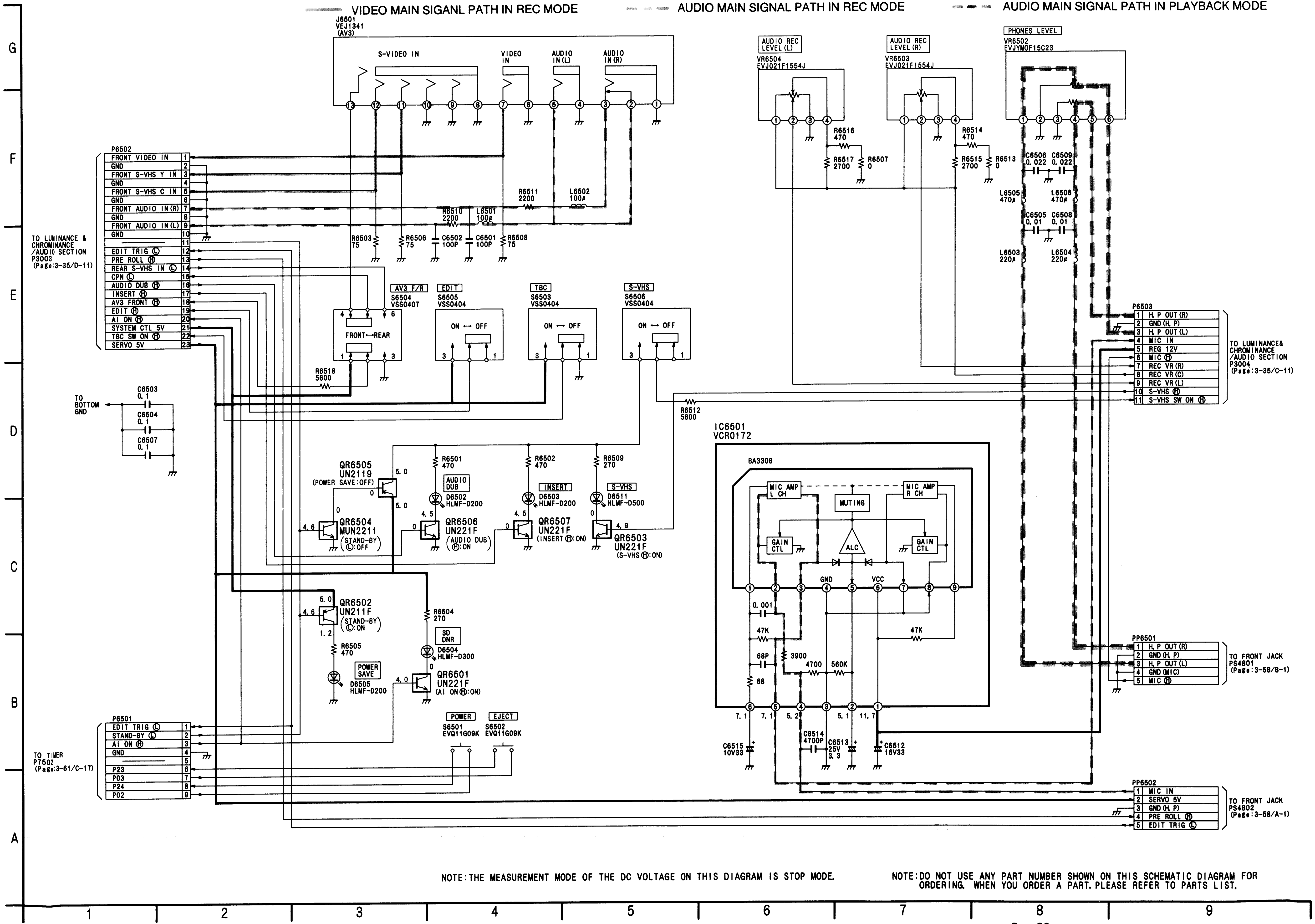
NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

3-19. FRONT JACK SCHEMATIC DIAGRAM


AUDIO MAIN SIGNAL PATH IN REC MODE
AUDIO MAIN SIGNAL PATH IN PLAYBACK MODE
J4801
VJJ0329
PHONES
J4802
VJJ0308
MIC
J4803
VJJ0242
SYNC. 18mm
PS4801
H.P OUT (R)
GND (H.P)
H.P OUT (L)
GND (MIC)
MIC Ⓗ
TO VR PP6501 (Page:3-59/B-9)
PS4802
MIC IN
SERVO 5V
GND
PRE ROLL Ⓗ
EDIT TRIG Ⓛ
TO VR PP6502 (Page:3-59/A-9)
LB4801
VLP0145
B
A
1
2
3
4

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

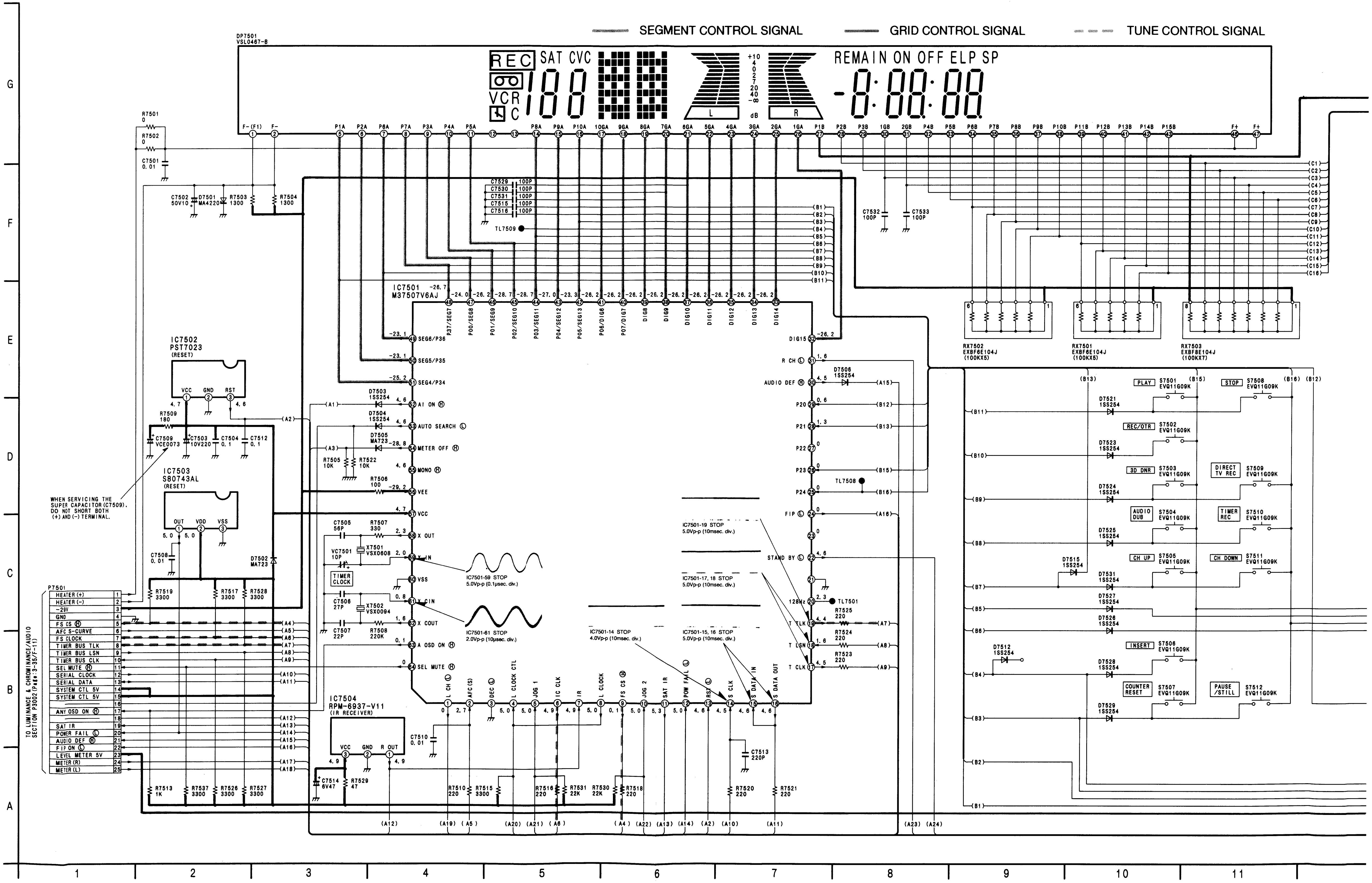
3-20. VR SCHEMATIC DIAGRAM

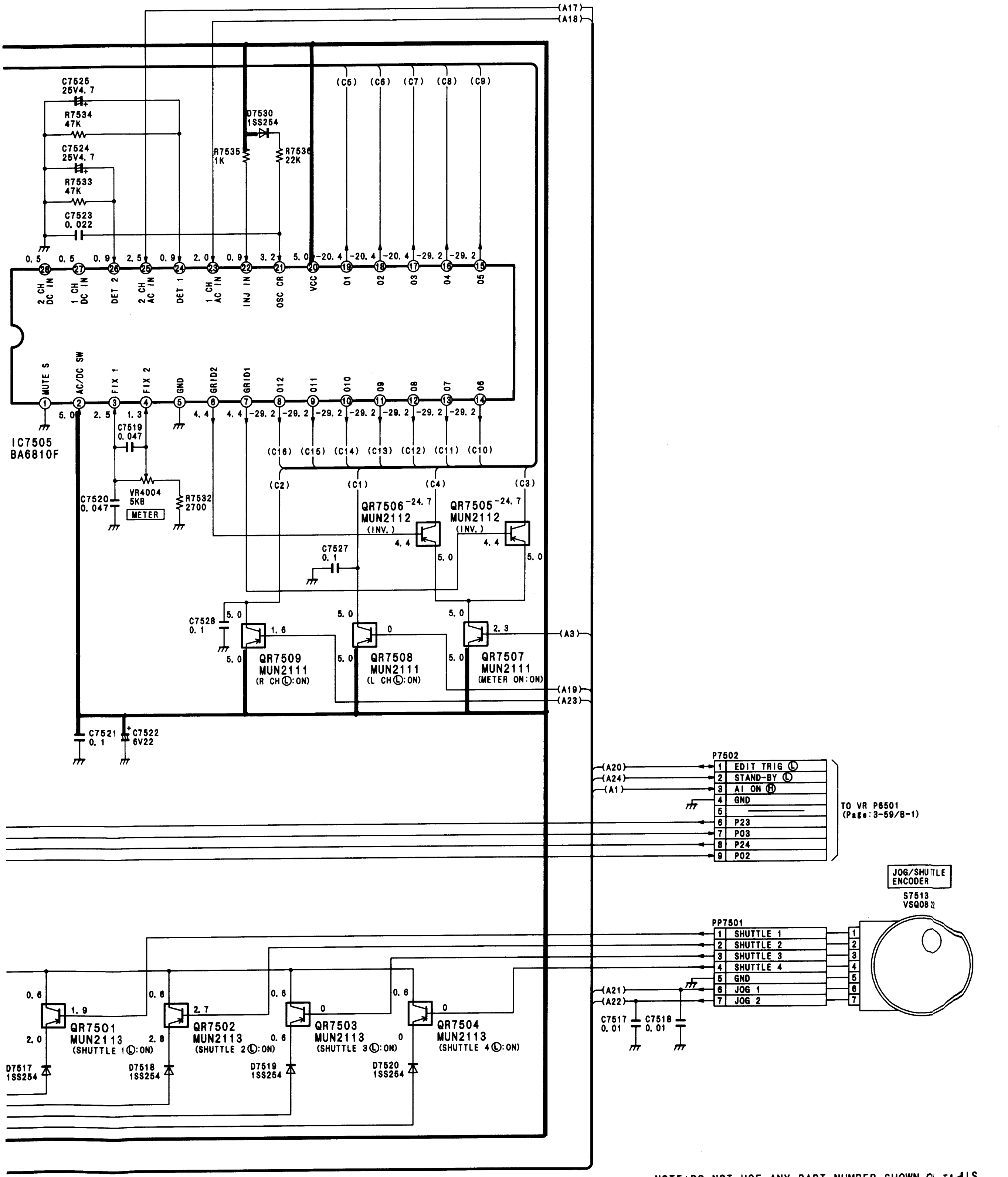

VIDEO MAIN SIGANL PATH IN REC MODE
AUDIO MAIN SIGNAL PATH IN REC MODE
AUDIO MAIN SIGNAL PATH IN PLAYBACK MODE
J6501
VEJ1341
(AV3)
S-VIDEO IN
VIDEO IN
AUDIO IN(L)
AUDIO IN(R)
AUDIO REC LEVEL (L)
VR6504
EVJ021F1554J
AUDIO REC LEVEL (R)
VR6503
EVJ021F1554J
PHONES LEVEL
VR6502
EVJYM0F15C23
R6516 470
R6517 2700
R6507 0
R6514 470
R6515 2700
R6513 0
C6506 0.022
C6509 0.022
L6505 470μ
L6506 470μ
C6505 0.01
C6508 0.01
L6503 220μ
L6504 220μ
P6502
FRONT VIDEO IN 1
GND 2
FRONT S-VHS Y IN 3
GND 4
FRONT S-VHS C IN 5
GND 6
FRONT AUDIO IN(R) 7
GND 8
FRONT AUDIO IN(L) 9
GND 10
11
EDIT TRIG Ⓛ 12
PRE ROLL Ⓗ 13
REAR S-VHS IN Ⓛ 14
CPN Ⓛ 15
AUDIO DUB Ⓗ 16
INSERT Ⓗ 17
AV3 FRONT Ⓗ 18
EDIT Ⓗ 19
AI ON Ⓗ 20
SYSTEM CTL 5V 21
TBC SW ON Ⓗ 22
SERVO 5V 23
TO LUMINANCE & CHROMINANCE /AUDIO SECTION P3003 (Page:3-35/D-11)
R6511 2200
L6502 100μ
R6510 2200
L6501 100μ
R6503 75
R6506 75
C6502 100P
C6501 100P
R6508 75
AV3 F/R
S6504
VSS0407
FRONT↔REAR
EDIT
S6505
VSS0404
TBC
S6503
VSS0404
S-VHS
S6506
VSS0404
ON ↔ OFF
R6518 5600
TO BOTTOM GND
C6503 0.1
C6504 0.1
C6507 0.1
R6512 5600
P6503
1 H.P OUT(R)
2 GND(H.P)
3 H.P OUT(L)
4 MIC IN
5 REG 12V
6 MIC Ⓗ
7 REC VR(R)
8 REC VR(C)
9 REC VR(L)
10 S-VHS Ⓗ
11 S-VHS SW ON Ⓗ
TO LUMINANCE& CHROMINANCE /AUDIO SECTION P3004 (Page:3-35/C-11)
QR6505
UN2119
(POWER SAVE:OFF)
QR6504
MUN2211
(STAND-BY) (Ⓛ:OFF)
R6501 470
AUDIO DUB
D6502 HLMF-D200
QR6506
UN221F
(AUDIO DUB) (Ⓗ:ON)
R6502 470
INSERT
D6503 HLMF-D200
QR6507
UN221F
(INSERT Ⓗ:ON)
R6509 270
S-VHS
D6511 HLMF-D500
QR6503
UN221F
(S-VHS Ⓗ:ON)
IC6501
VCR0172
BA3308
MIC AMP L CH
MIC AMP R CH
MUTING
GAIN CTL
ALC
GND
VCC
0.001
47K
68P
68
3900
4700
560K
C6515 10V33
C6514 4700P
C6513 25V 3.3
C6512 16V33
QR6502
UN211F
(STAND-BY) (Ⓛ:ON)
R6505 470
POWER SAVE
D6505 HLMF-D200
R6504 270
3D DNR
D6504 HLMF-D300
QR6501
UN221F
(AI ON Ⓗ:ON)
POWER
S6501
EVQ11G09K
EJECT
S6502
EVQ11G09K
P6501
EDIT TRIG Ⓛ 1
STAND-BY Ⓛ 2
AI ON Ⓗ 3
GND 4
5
P23 6
P03 7
P24 8
P02 9
TO TIMER P7502 (Page:3-61/C-17)
PP6501
1 H.P OUT(R)
2 GND(H.P)
3 H.P OUT(L)
4 GND(MIC)
5 MIC Ⓗ
TO FRONT JACK PS4801 (Page:3-58/B-1)
PP6502
1 MIC IN
2 SERVO 5V
3 GND(H.P)
4 PRE ROLL Ⓗ
5 EDIT TRIG Ⓛ
TO FRONT JACK PS4802 (Page:3-58/A-1)
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9

NOTE:THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE.

NOTE:DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

3-21. TIMER SCHEMATIC DIAGRAM


SEGMENT CONTROL SIGNAL
GRID CONTROL SIGNAL
TUNE CONTROL SIGNAL
DP7501
VSL0467-B
REC SAT CVC
VCR
REMAIN ON OFF ELP SP
-8:88:88
dB
L
R
IC7501
M37507V6AJ
IC7502
PST7023
(RESET)
IC7503
S80743AL
(RESET)
IC7504
RPM-6937-V11
(IR RECEIVER)
WHEN SERVICING THE SUPER CAPACITOR (C7509), DO NOT SHORT BOTH (+) AND (-) TERMINAL.
P7501
HEATER (+)
HEATER (-)
-29V
GND
FS CS Ⓗ
AFC S-CURVE
FS CLOCK
TIMER BUS TLK
TIMER BUS LSN
TIMER BUS CLK
SEL MUTE Ⓗ
SERIAL CLOCK
SERIAL DATA
SYSTEM CTL 5V
SYSTEM CTL 5V
ANY OSD ON Ⓗ
SAT IR
POWER FAIL Ⓛ
AUDIO DEF Ⓗ
FIP ON Ⓛ
LEVEL METER 5V
METER (R)
METER (L)
TO LUMINANCE & CHROMINANCE/AUDIO SECTION P3002 (Page: 3-35/F-11)
TIMER CLOCK
X7501 VSX0608
X7502 VSX0094
IC7501-59 STOP 5.0Vp-p (0.1μsec. div.)
IC7501-61 STOP 2.0Vp-p (10μsec. div.)
IC7501-19 STOP 5.0Vp-p (10msec. div.)
IC7501-17, 18 STOP 5.0Vp-p (10msec. div.)
IC7501-14 STOP 4.0Vp-p (10msec. div.)
IC7501-15, 16 STOP 5.0Vp-p (10msec. div.)
RX7502 EXBF6E104J (100KX5)
RX7501 EXBF6E104J (100KX5)
RX7503 EXBF8E104J (100KX7)
PLAY S7501 EVQ11G09K
STOP S7508 EVQ11G09K
REC/OTR S7502 EVQ11G09K
3D DNR S7503 EVQ11G09K
DIRECT TV REC S7509 EVQ11G09K
AUDIO DUB S7504 EVQ11G09K
TIMER REC S7510 EVQ11G09K
CH UP S7505 EVQ11G09K
CH DOWN S7511 EVQ11G09K
INSERT S7506 EVQ11G09K
COUNTER RESET S7507 EVQ11G09K
PAUSE /STILL S7512 EVQ11G09K
TL7501
TL7508
TL7509
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
10
11

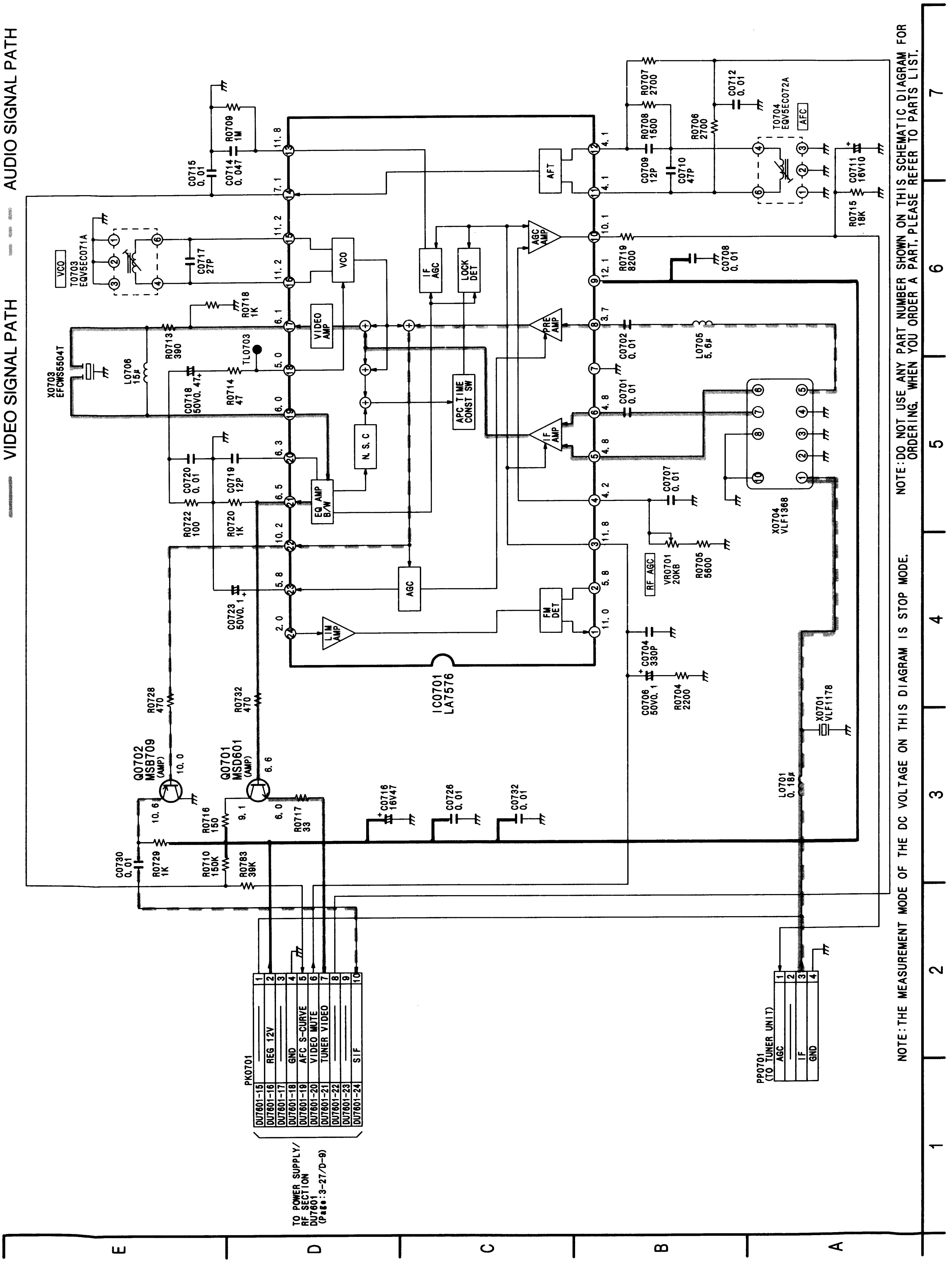


(A17)
(A18)
C7525 25V4.7
R7534 47K
C7524 25V4.7
R7533 47K
C7523 0.022
D7530 1SS254
R7535 1K
R7536 22K
(C5) (C6) (C7) (C8) (C9)
0.5 0.5 0.9 2.5 0.9 2.0 0.9 3.2 5.0 -20.4 -20.4 -20.4 -29.2 -29.2
2 CH DC IN
1 CH DC IN
DET 2
2 CH AC IN
DET 1
1 CH AC IN
INJ IN
OSC CR
VCC
O1
O2
O3
O4
O5
MUTE S
AC/DC SW
FIX 1
FIX 2
GND
GRID2
GRID1
O12
O11
O10
O9
O8
O7
O6
5.0 2.5 1.3 4.4 4.4 -29.2 -29.2 -29.2 -29.2 -29.2 -29.2 -29.2
IC7505
BA6810F
C7519 0.047
(C16) (C15) (C14) (C13) (C12) (C11) (C10)
(C2) (C1) (C4) (C3)
C7520 0.047
VR4004 5KB
METER
R7532 2700
QR7506 -24.7 MUN2112 (INV.)
QR7505 -24.7 MUN2112 (INV.)
4.4 5.0 4.4 5.0
C7527 0.1
C7528 0.1
5.0 1.6 5.0 0 5.0 2.3
QR7509 MUN2111 (R CH Ⓛ:ON)
QR7508 MUN2111 (L CH Ⓛ:ON)
QR7507 MUN2111 (METER ON:ON)
(A3)
(A19)
(A23)
C7521 0.1
C7522 6V22
(A20)
(A24)
(A1)
P7502
1 EDIT TRIG Ⓛ
2 STAND-BY Ⓛ
3 AI ON Ⓗ
4 GND
5
6 P23
7 P03
8 P24
9 P02
TO VR P6501 (Page:3-59/B-1)
JOG/SHUTTLE ENCODER
S7513 VSQ082
PP7501
1 SHUTTLE 1
2 SHUTTLE 2
3 SHUTTLE 3
4 SHUTTLE 4
5 GND
6 JOG 1
7 JOG 2
(A21)
(A22)
C7517 0.01
C7518 0.01
0.6 1.9 2.0 QR7501 MUN2113 (SHUTTLE 1Ⓛ:ON)
0.6 2.7 2.8 QR7502 MUN2113 (SHUTTLE 2Ⓛ:ON)
0.6 0 0.6 QR7503 MUN2113 (SHUTTLE 3Ⓛ:ON)
0.6 0 0 QR7504 MUN2113 (SHUTTLE 4Ⓛ:ON)
D7517 1SS254
D7518 1SS254
D7519 1SS254
D7520 1SS254
12
13
14
15
17
18

NOTE:THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE.

NOTE:DO NOT USE ANY PART NUMBER SHOWN ON THIS
SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU
ORDER A PART, PLEASE REFER TO PARTS LIST.

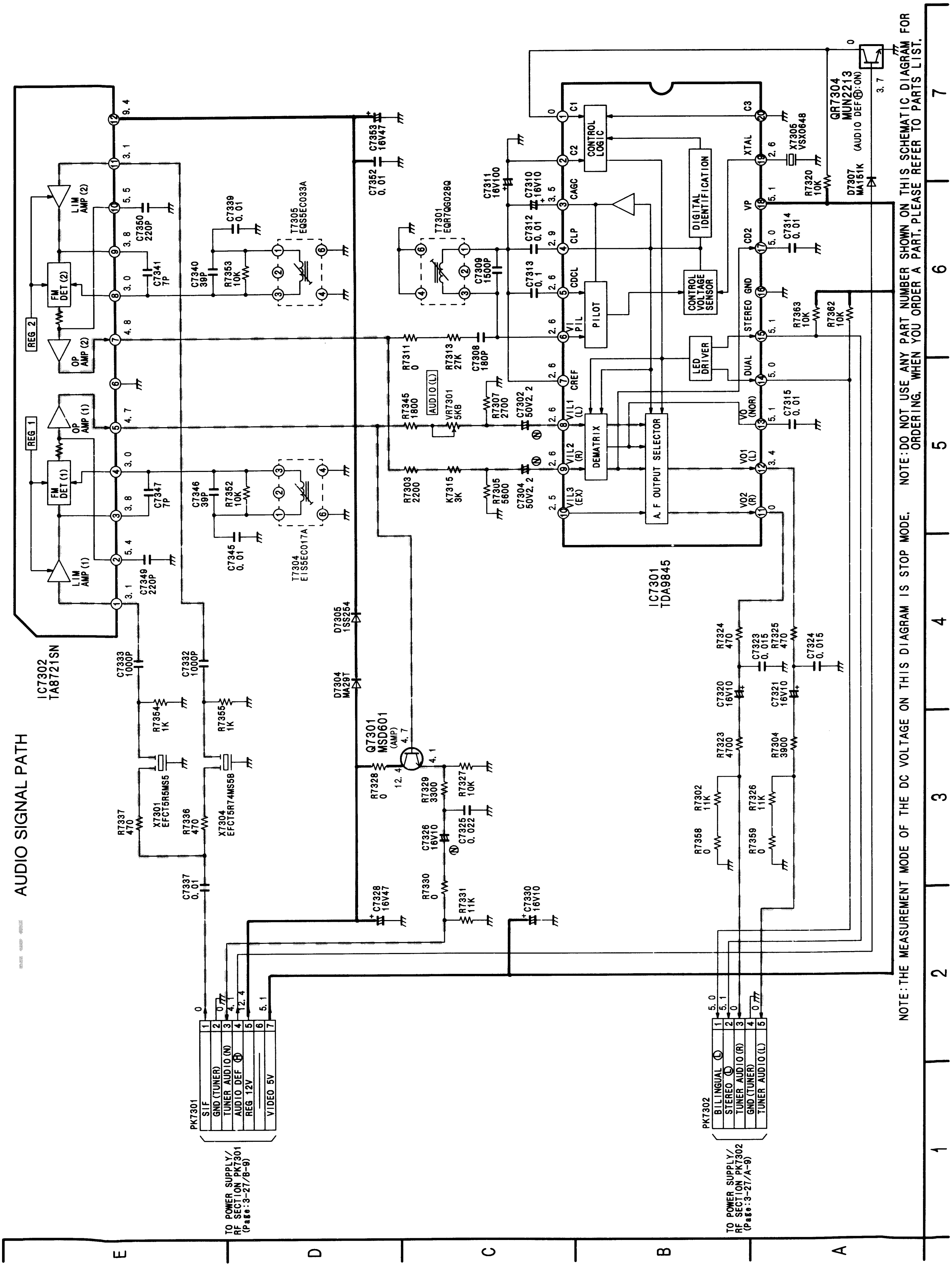
3-22. TV DEMODULATOR PACK SCHEMATIC DIAGRAM


VIDEO SIGNAL PATH
AUDIO SIGNAL PATH
IC0701
LA7576
VCO
T0703
EQV5EC071A
C0717
27P
X0703
EFCWS5504T
L0706
15μ
R0713
390
R0718
1K
TL0703
C0718
50V0.47
R0714
47
C0720
0.01
C0719
12P
R0722
100
R0720
1K
C0723
50V0.1
C0715
0.01
C0714
0.047
R0709
1M
VIDEO AMP
VCO
N.S.C
EQ AMP B/W
AGC
LIM AMP
IF AGC
LOCK DET
APC TIME CONST SW
AFT
AGC AMP
PRE AMP
IF AMP
FM DET
R0707
2700
R0708
1500
R0706
2700
C0712
0.01
C0709
12P
C0710
47P
T0704
EQV5EC072A
AFC
C0711
16V10
R0715
18K
R0719
8200
C0708
0.01
C0702
0.01
L0705
5.6μ
C0701
0.01
C0707
0.01
X0704
VLF1368
RF AGC
VR0701
20KB
R0705
5600
C0704
330P
C0706
50V0.1
R0704
2200
X0701
VLF1178
L0701
0.18μ
R0728
470
R0732
470
Q0702
MSB709
(AMP)
Q0701
MSD601
(AMP)
R0716
150
R0717
33
C0716
16V47
C0726
0.01
C0732
0.01
C0730
0.01
R0729
1K
R0710
150K
R0783
39K
11.8
7.1
11.2
11.2
6.1
5.0
6.0
6.3
6.5
10.2
5.8
2.0
4.1
4.1
10.1
12.1
3.7
4.8
4.8
4.2
11.8
5.8
11.0
10.0
10.6
6.6
9.1
6.0
PK0701
DU7601-15
DU7601-16
DU7601-17
DU7601-18
DU7601-19
DU7601-20
DU7601-21
DU7601-22
DU7601-23
DU7601-24
REG 12V
GND
AFC S-CURVE
VIDEO MUTE
TUNER VIDEO
SIF
TO POWER SUPPLY/
RF SECTION
DU7601
(Page:3-27/D-9)
PP0701
(TO TUNER UNIT)
AGC
IF
GND
1
2
3
4
5
6
7
A
B
C
D
E

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING, WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE.

3-23. DECODER PACK SCHEMATIC DIAGRAM

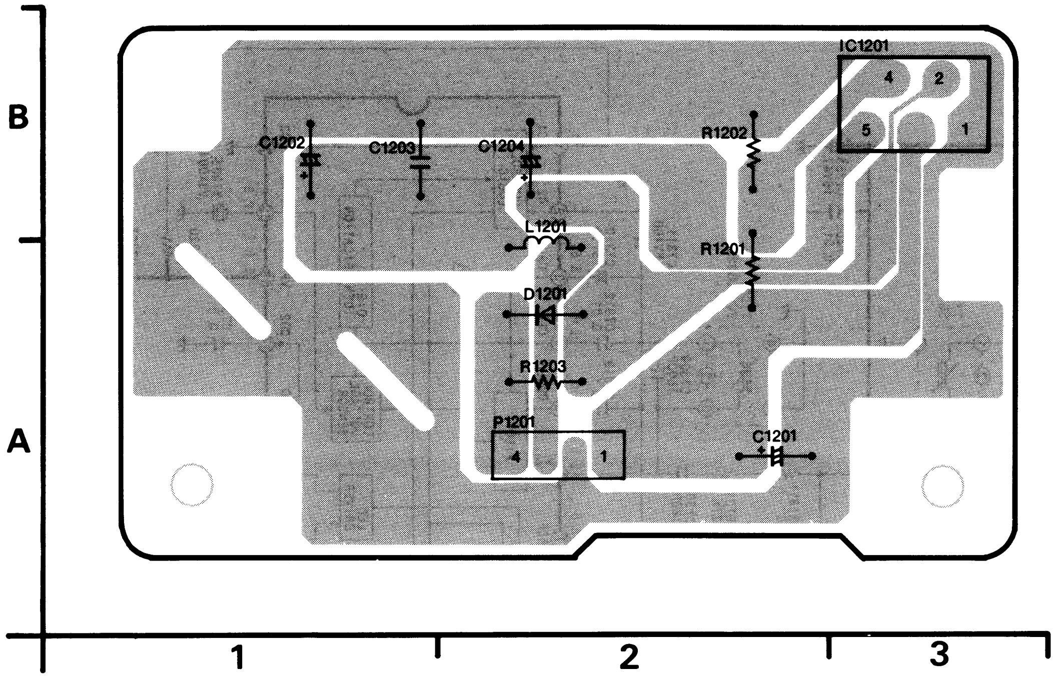


AUDIO SIGNAL PATH
IC7302
TA8721SN
LIM AMP (1)
LIM AMP (2)
FM DET (1)
FM DET (2)
OP AMP (1)
OP AMP (2)
REG 1
REG 2
IC7301
TDA9845
CONTROL LOGIC
DIGITAL IDENTIFICATION
CONTROL VOLTAGE SENSOR
PILOT
LED DRIVER
DEMATRIX
A.F OUTPUT SELECTOR
C1
C2
CAGC
CLP
CDCL
VI PIL
CREF
VIL1 (L)
VIL2 (R)
VIL3 (EX)
VO2 (R)
VO1 (L)
VO (NOR)
DUAL
STEREO GND
CD2
VP
XTAL
C3
Q7301
MSD601
(AMP)
QR7304
MUN2213
(AUDIO DEF Ⓗ:ON)
D7307
MA151K
D7304
MA29T
D7305
1SS254
T7301
EQRTQG028Q
T7304
EIS5EC017A
T7305
EQS5EC033A
X7301
EFCT5R5MS5
X7304
EFCT5R74MS5B
X7305
VSX0648
AUDIO (L)
VR7301
5K8
PK7301
SIF
GND (TUNER)
TUNER AUDIO (N)
AUDIO DEF Ⓗ
REG 12V
VIDEO 5V
PK7302
BILINGUAL Ⓛ
STEREO Ⓛ
TUNER AUDIO (R)
GND (TUNER)
TUNER AUDIO (L)
TO POWER SUPPLY/
RF SECTION PK7301
(Page: 3-27/B-9)
TO POWER SUPPLY/
RF SECTION PK7302
(Page: 3-27/A-9)
E
D
C
B
A
1
2
3
4
5
6
7

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE.

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

3-24. SUB POWER C.B.A. (VEP01804A)



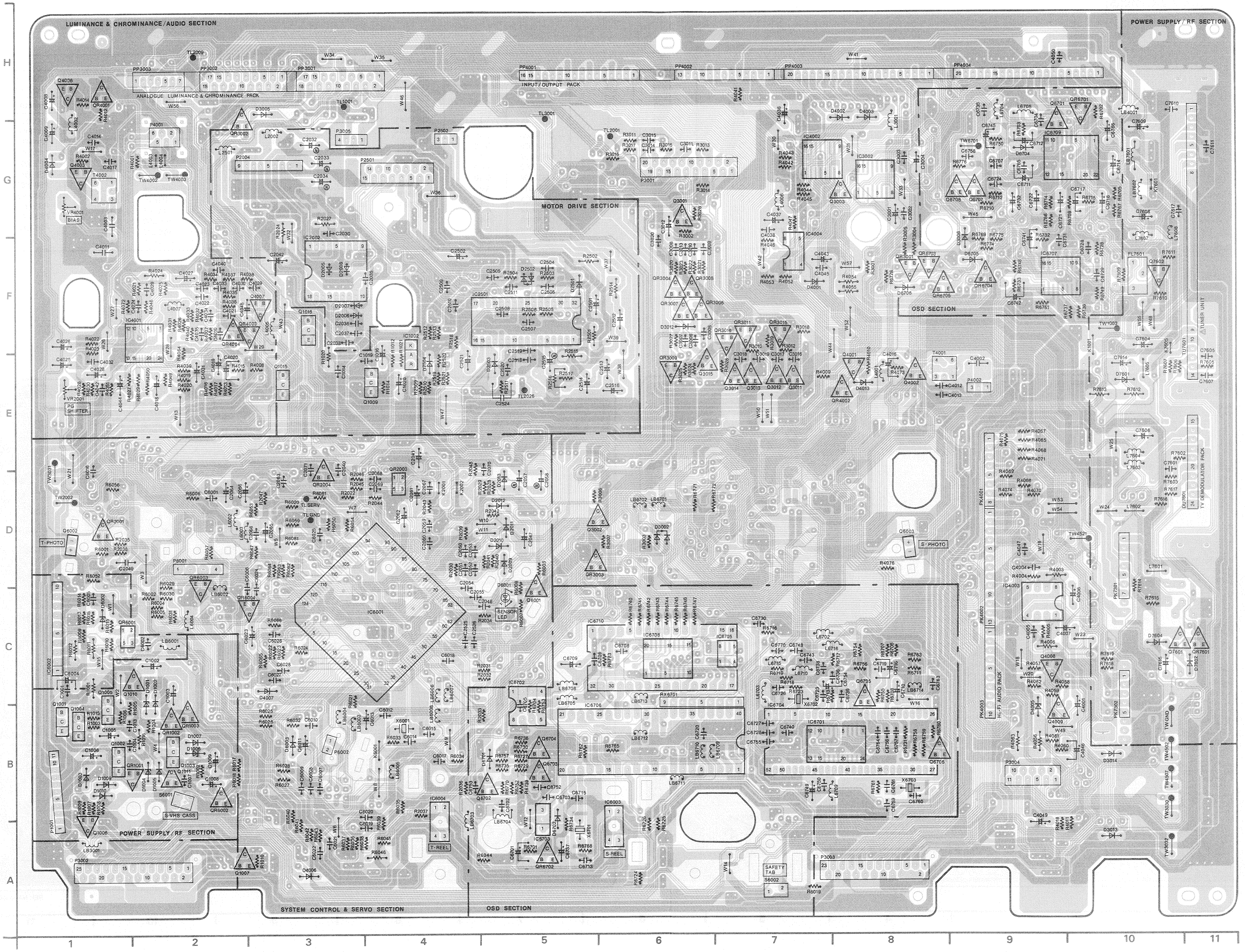
SUB POWER C.B.A.	
Integrated Circuit	
IC1201	B-3
Connector	
P1201	A-2

ADDRESS INFORMATION

MAIN C.B.A.	
Transistor	
Q1001	B-1
Q1002	B-1
Q1003	B-2
Q1004	B-1
Q1005	B-1
Q1006	A-1
Q1007	A-2
Q1009	E-3
Q1010	C-1
Q1011	B-2
Q1015	E-3
Q1016	F-3
Q3001	G-6
Q3002	D-5
Q3003	G-8
Q3011	E-7
Q3012	E-7
Q3013	E-7
Q3014	E-7
Q3015	E-6
Q4001	E-8
Q4002	E-8
Q4003	G-1
Q4006	H-1
Q4007	F-3
Q4008	C-9
Q4009	B-9
Q6001	C-5
Q6002	D-1
Q6003	D-8
Q6701	H-9
Q6702	B-5
Q6703	B-5
Q6704	B-5
Q6705	C-8
Q6706	B-8
Q6707	G-9
Q6708	G-9
Q7601	C-10
Q7602	F-10
Transistor & Resistor	
QR1001	B-2
QR1002	B-2
QR1003	B-2
QR2001	D-1
QR2003	D-4
QR2004	D-3
QR3001	F-8
QR3002	G-2
QR3003	D-5
QR3004	F-6
QR3006	F-6
QR3007	F-6
QR3008	F-6
QR3009	E-6
QR3011	F-7
QR3015	F-7
QR3016	F-7
QR4001	H-1
QR4002	E-8
QR4003	F-2
QR4004	F-2
QR6001	C-1
QR6002	B-2
QR6003	D-2
QR6004	C-2
QR6701	H-10
QR6702	A-5
QR6703	F-8
QR6704	F-9
QR6705	F-8
QR7601	C-11
Integrated Circuit	
IC1002	F-4
IC2002	F-3
IC2501	F-5
IC3002	G-8
IC4001	F-2
IC4002	G-7
IC4003	D-9
IC4004	G-7
IC6001	C-4
IC6002	C-1
IC6003	B-6
IC6004	B-4
IC6701	B-7
IC6702	C-5
IC6703	A-5
IC6704	B-7
IC6705	C-7
IC6706	B-5
IC6707	F-9
IC6708	C-6
IC6709	G-9
IC6710	C-6
Test Point	
TL1001	H-3
TL2001	G-6
TL2009	H-2
TL2026	E-5
TL3001	H-5
TLGND	D-3
TLSERV	D-3
TW1003	F-10
TW2002	D-1
TW3030	B-10
TW3031	D-1
TW3032	A-10
TW4002	G-2
TW4003	G-2
TW4502	B-10
TW4507	B-10
TW4521	D-10
TW6701	G-9
TWGND	B-10
Adjustment	
VR2001	E-1
VR4001	G-1
Connector	
DU7601	D-10
P1001	B-1
P2004	G-2
P2501	G-3
P2502	G-4
P3001	G-6
P3002	A-1
P3003	A-8
P3004	B-9
P3005	G-3
P4001	G-2
P4002	E-9
P6001	D-2
P6002	B-3
PK4001	D-9
PK4002	C-9
PK4003	B-9
PK7301	C-10
PK7302	B-10
PP3001	H-3
PP3002	H-2
PP3003	H-2
PP4001	H-5
PP4002	H-6
PP4003	H-7
PP4004	H-9
TU7601	F-10

ADDRESS INFORMATION

3-25. MAIN C.B.A. (VEP06B83A)

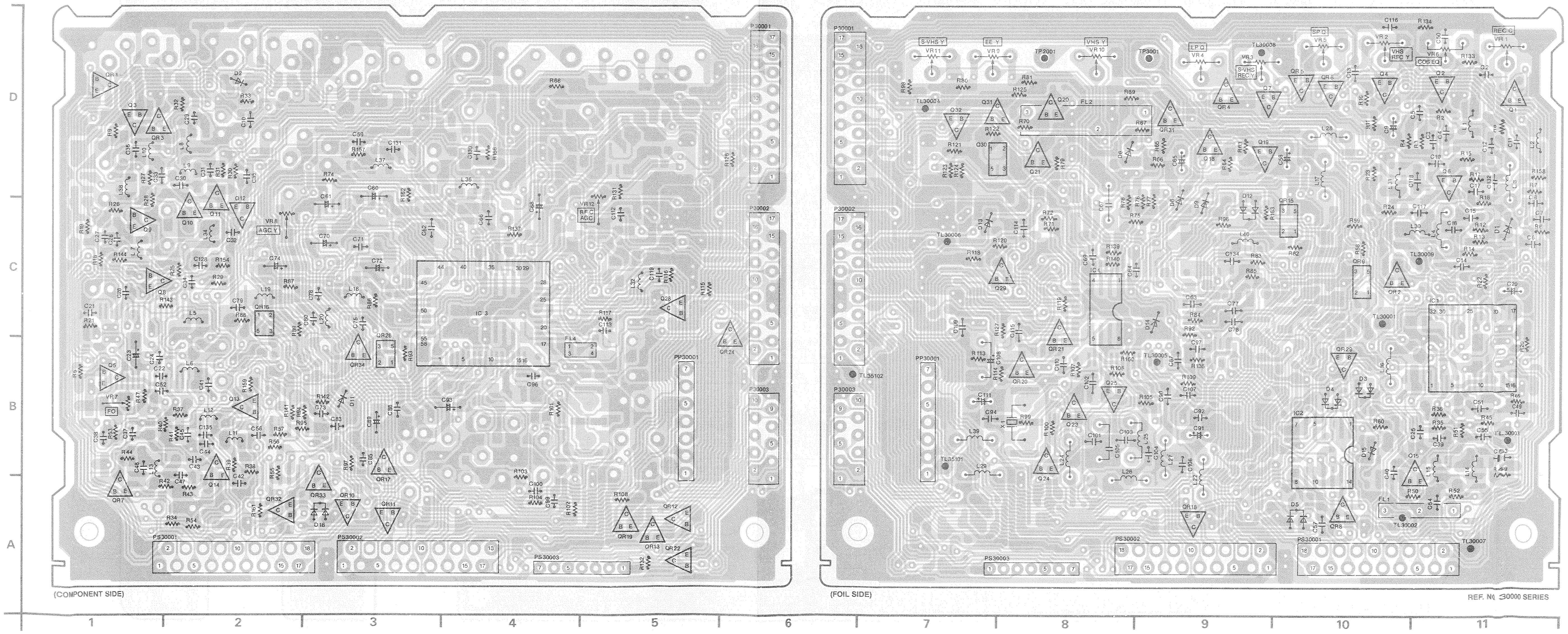

LUMINANCE & CHROMINANCE/AUDIO SECTION
ANALOGUE LUMINANCE & CHROMINANCE PACK
INPUT/OUTPUT PACK
MOTOR DRIVE SECTION
OSD SECTION
POWER SUPPLY / RF SECTION
SYSTEM CONTROL & SERVO SECTION
Hi-Fi AUDIO PACK
TV DEMODULATOR PACK
TUNER UNIT
IC6001
IC2501
IC4002
IC6701
S-VHS CASS
SAFETY TAB
T-PHOTO
S-PHOTO
T-REEL
S-REEL
SENSOR LED
PG SHIFTER
BIAS
H
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
10
11

3-26. ANALOGUE LUMINANCE & CHROMINANCE PACK C.B.A. (VEP03D76A)
[REF. NO. 30000 SERIES]

ANALOGUE LUMINANCE & CHROMINANCE PACK C.B.A.

Transistor		Q30018	D-9	**Transistor & Resistor**		QR30017	A-3	**Integrated Circuit**		TL35101	B-7	VR30011	D-7
Q30001	D-11	Q30019	D-9	QR30001	D-1	QR30018	A-9	IC30001	C-11	TL35102	B-7	VR30012	C-5
Q30002	D-11	Q30020	D-8	QR30002	C-10	QR30019	A-5	IC30002	B-10	TP2001	D-8	**Connector**	
Q30003	D-1	Q30021	D-8	QR30003	D-1	QR30020	B-8	IC30003	C-4	TP3001	D-8	P30001	D-6
Q30004	D-10	Q30023	B-8	QR30004	D-9	QR30021	B-8	IC30004	C-8			P30002	C-6
Q30005	B-1	Q30024	A-8	QR30005	D-10	QR30022	A-5	**Test Point**		**Adjustment**		P30003	B-6
Q30006	D-11	Q30025	B-8	QR30006	D-10	QR30024	B-6	TL30001	C-10	VR30001	D-11	PP30001	B-5
Q30007	D-9	Q30028	C-5	QR30007	A-1	QR30026	B-3	TL30002	A-10	VR30002	D-10	PP30001	B-7
Q30008	C-1	Q30029	C-7	QR30008	A-10	QR30029	B-10	TL30003	B-11	VR30003	D-9	PS30001	A-2
Q30009	C-1	Q30030	D-7	QR30009	C-10	QR30031	D-9	TL30004	D-7	VR30004	D-9	PS30001	A-10
Q30010	C-2	Q30031	D-7	QR30010	A-3	QR30032	A-2	TL30005	B-9	VR30005	D-10	PS30002	A-3
Q30011	C-2	Q30032	D-7	QR30011	A-3	QR30033	A-3	TL30006	C-7	VR30006	D-11	PS30002	A-8
Q30012	C-2			QR30012	A-5	QR30034	B-3	TL30007	A-11	VR30007	B-1	PS30003	A-4
Q30013	B-2			QR30013	A-5			TL30008	D-9	VR30008	C-2	PS30003	A-8
Q30014	A-2			QR30015	C-10			TL30009	C-11	VR30009	D-7		
Q30015	B-10			QR30016	C-2					VR30010	D-8		

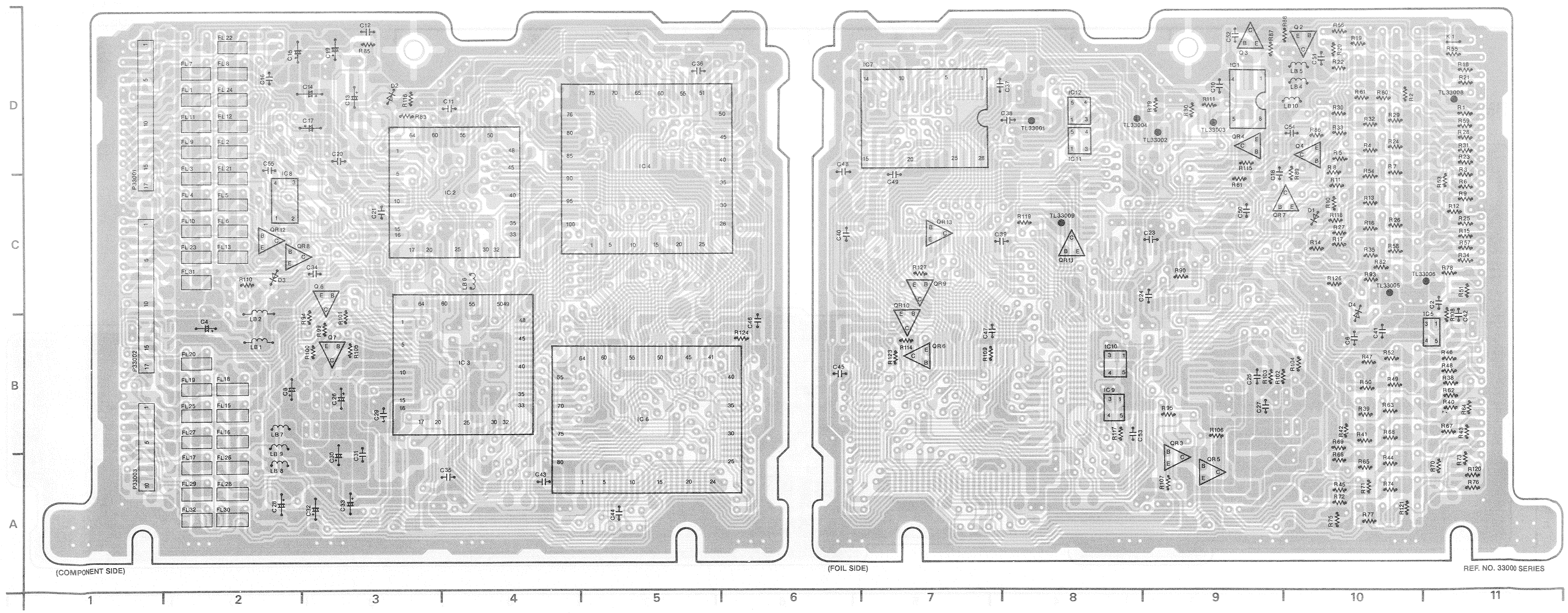
ADDRESS INFORMATION


D
C
B
A
1
2
3
4
5
6
7
8
9
10
11
(COMPONENT SIDE)
(FOIL SIDE)
REF. No. 30000 SERIES
IC 3
IC1
IC2
P30001
P30002
P30003
PP30001
PS30001
PS30002
PS30003
S-VHS Y
EE Y
VHS Y
TP2001
TP3001
FL2
FL4
FL1
TL35101
TL35102
TL30001
TL30002
TL30003
TL30004
TL30005
TL30006
TL30007
TL30008
TL30009
AGC Y
RF AGC
FO
LPO
SPO
REC C
VHS REC Y
S-VHS REC Y
COS EQ

3-27. DIGITAL LUMINANCE & CHROMINANCE C.B.A. (VEP03D75A)
[REF. NO. 33000 SERIES]

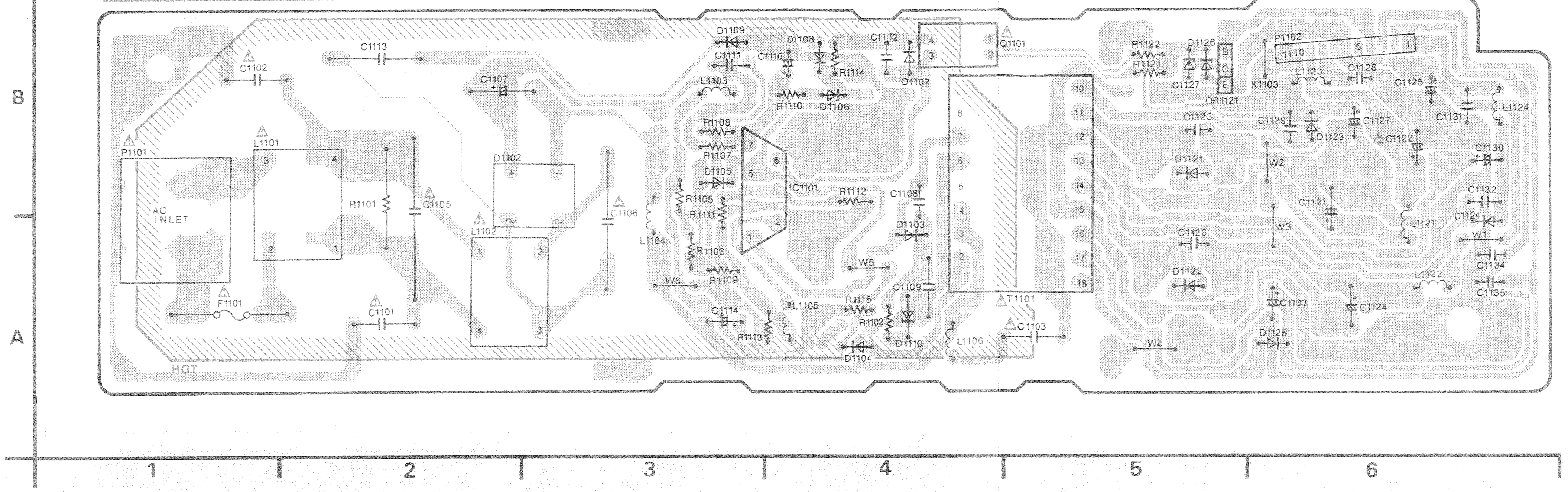
DIGITAL LUMINANCE & CHROMINANCE C.B.A.	
Transistor	
Q33002	D-10
Q33003	D-9
Q33004	D-10
Q33006	C-3
Q33007	B-3
Transistor & Resistor	
QR33003	A-9
QR33004	D-9
QR33005	A-9
QR33006	B-7
QR33007	C-9
QR33008	C-2
QR33009	C-7
QR33010	B-7
QR33011	C-8
QR33012	C-2
QR33013	C-7
Integrated Circuit	
IC33001	D-9
IC33002	C-4
IC33003	B-4
IC33004	D-5
IC33005	B-11
IC33006	B-5
IC33007	D-7
IC33008	C-2
IC33009	B-8
IC33010	B-8
IC33011	D-8
IC33012	D-8
Test Point	
TL33001	D-8
TL33002	D-9
TL33003	D-9
TL33004	D-8
TL33008	D-11
TL33009	C-8
Connector	
P33001	C-1
P33002	B-1
P33003	A-1

ADDRESS INFORMATION


D
C
B
A
1
2
3
4
5
6
7
8
9
10
11
P33001
P33002
P33003
IC 2
IC 3
IC 4
IC 6
IC 8
IC1
IC5
IC7
IC9
IC10
IC11
IC12
TL33001
TL33002
TL33003
TL33004
TL33005
TL33006
TL33008
TL33009
(COMPONENT SIDE)
(FOIL SIDE)
REF. NO. 33000 SERIES

3-28. POWER C.B.A. (VEP01639A)

CAUTION THE RED MARK INDICATES THE PRIMARY CIRCUIT TO DISTINGUISH THE PRIMARY FROM THE SECONDARY CIRCUIT.
PAY ATTENTION NOT TO RECEIVE AN ELECTRIC SHOCK DURING REPAIR AND SERVICE OF THE PRODUCTS.


B
A
1
2
3
4
5
6
P1101
AC INLET
F1101
HOT
C1102
C1113
L1101
R1101
C1105
C1101
C1107
D1102
L1102
C1106
L1104
W6
D1109
C1111
C1110
D1108
R1114
C1112
D1107
L1103
R1110
D1106
R1108
R1107
D1105
R1105
R1111
R1106
R1109
IC1101
R1112
C1108
D1103
W5
C1109
C1114
R1113
L1105
R1115
R1102
D1104
D1110
L1106
T1101
C1103
Q1101
R1122
R1121
D1126
D1127
QR1121
K1103
P1102
L1123
C1128
C1125
L1124
C1123
C1129
D1123
C1127
C1122
C1131
C1130
D1121
W2
C1121
C1132
D1124
L1121
W1
C1126
W3
C1134
C1135
D1122
L1122
C1133
C1124
D1125
W4

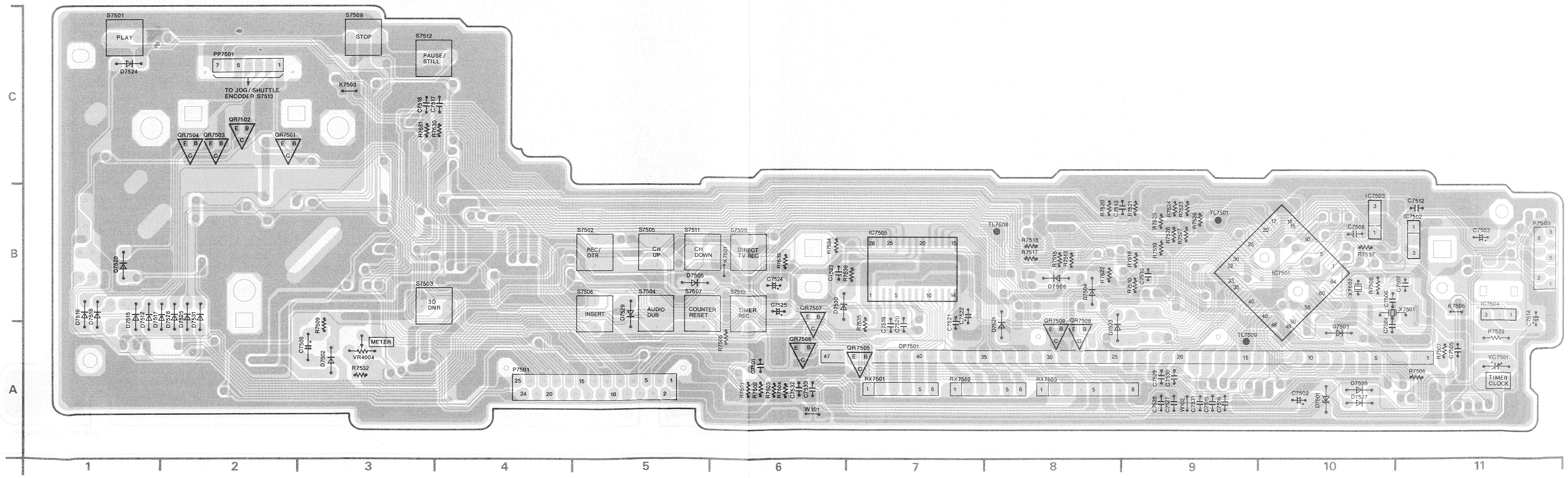
POWER C.B.A.	
Transistor	
Q1101	B-4
Transistor & Resistor	
QR1121	B-5
Integrated Circuit	
IC1101	A-3
Connector	
P1101	B-1
P1102	B-6

ADDRESS INFORMATION

TIMER C.B.A.	
Transistor & Resistor	
QR7501	C-2
QR7502	C-2
QR7503	C-2
QR7504	C-2
QR7505	A-7
QR7506	A-6
QR7507	B-6
QR7508	A-8
QR7509	A-8
Integrated Circuit	
IC7501	B-10
IC7502	B-11
IC7503	B-10
IC7504	B-11
IC7505	B-7
Test Point	
TL7501	B-9
TL7508	B-8
TL7509	A-9
Adjustment	
VC7501	A-11
VR4004	A-3
Connector	
P7501	A-4
P7502	B-11
PP7501	C-2

ADDRESS INFORMATION

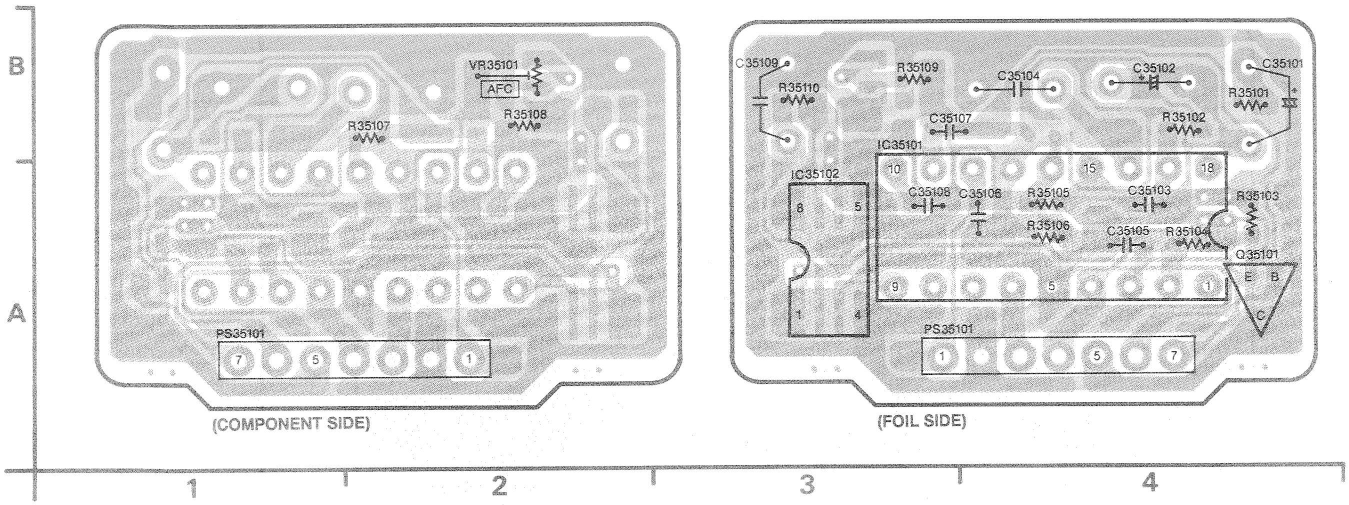
3-29. TIMER C.B.A. (VEP07951A)


C
B
A
1
2
3
4
5
6
7
8
9
10
11
S7501
PLAY
D7524
PP7501
TO JOG/SHUTTLE ENCODER S7513
S7508
STOP
S7512
PAUSE/STILL
K7503
QR7502
QR7504
QR7503
QR7501
S7502
REC/OTR
S7505
CH UP
S7511
CH DOWN
S7509
DIRECT TV REC
S7503
3D DNR
S7506
INSERT
S7504
AUDIO DUB
S7507
COUNTER RESET
S7510
TIMER REC
METER
VR4004
R7532
P7501
IC7505
QR7507
QR7506
QR7505
DP7501
RX7501
RX7502
RX7503
W101
TL7508
TL7501
TL7509
IC7501
IC7503
IC7502
C7512
C7508
X7501
QR7508
QR7509
D7506
K7506
IC7504
P7502
VC7501
TIMER CLOCK
C7502
D7526
D7527
R7506
R7529

3-30. AFC PACK C.B.A. (VEP03E17A)

AFC PACK C.B.A.			
Transistor		**Adjustment**	
Q35101	A-4	VR35101	B-2
Integrated Circuit		**Connector**	
IC35101 IC35102	A-3 A-3	PS35101 PS35101	A-1 A-3

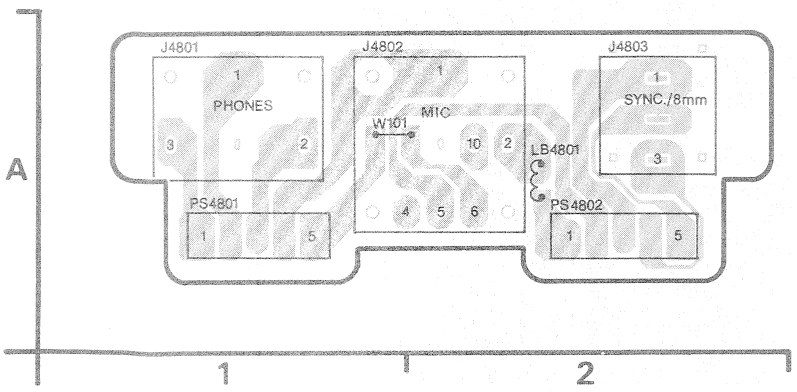
ADDRESS INFORMATION


B
A
VR35101
AFC
R35107
R35108
PS35101
7
5
1
(COMPONENT SIDE)
C35109
R35110
R35109
C35104
C35102
C35101
R35101
C35107
R35102
IC35101
IC35102
10
15
18
8
5
C35108
C35106
R35105
C35103
R35103
R35106
C35105
R35104
Q35101
E
B
C
9
5
1
1
4
PS35101
1
5
7
(FOIL SIDE)
1
2
3
4

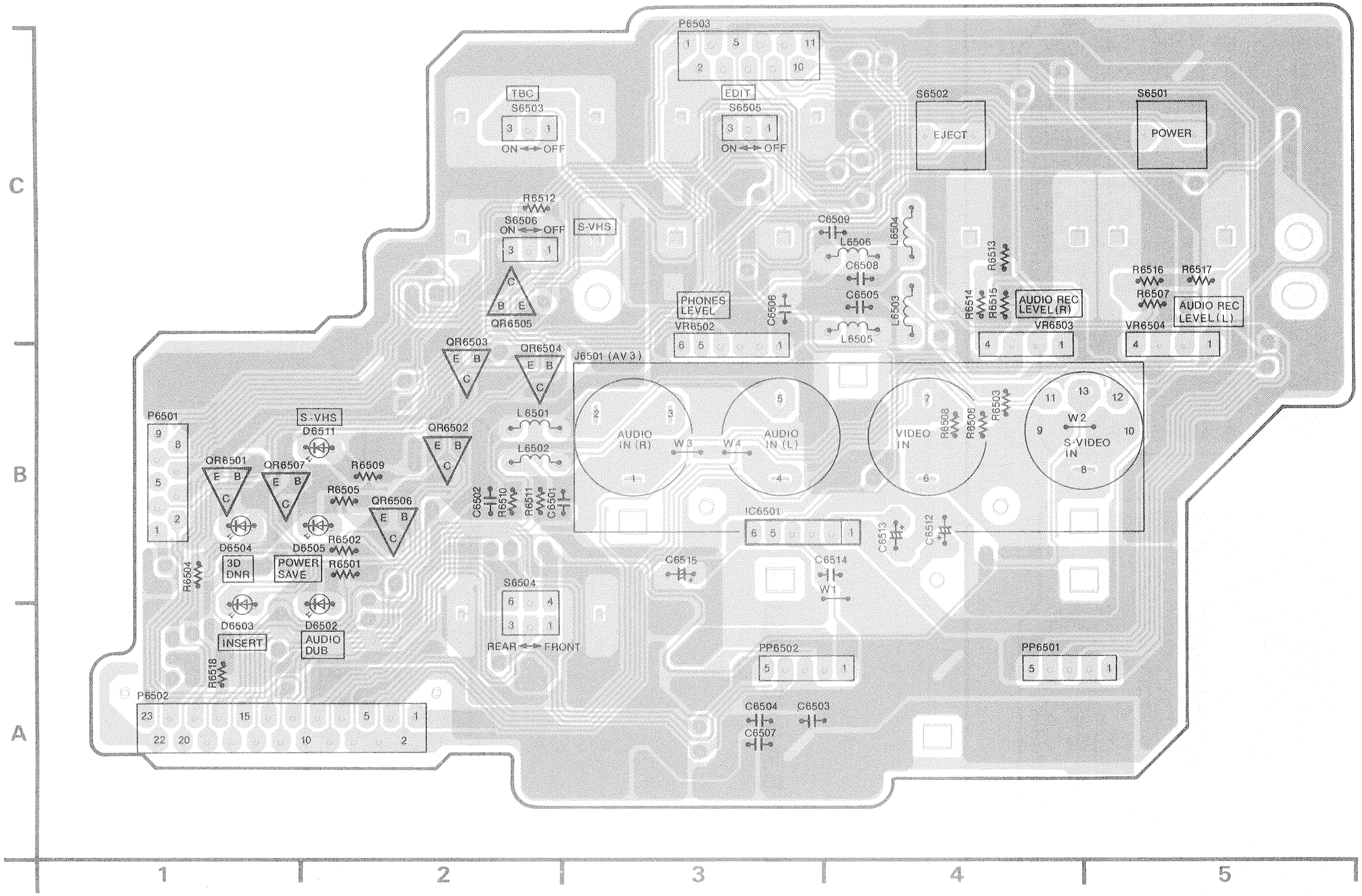
3-31. FRONT JACK C.B.A. (VEP04531A)

FRONT JACK C.B.A.	
Connector	
PS4801 PS4802	A-1 A-2

ADDRESS INFORMATION


A
J4801
1
PHONES
3
2
J4802
1
MIC
W101
10
2
4
5
6
J4803
1
SYNC./8mm
3
LB4801
PS4801
1
5
PS4802
1
5
1
2

3-32. VR C.B.A. (VEP06B84A)


P6503
1
5
11
2
10
TBC
S6503
3
1
ON ◄► OFF
EDIT
S6505
3
1
ON ◄► OFF
S6502
EJECT
S6501
POWER
R6512
S6506
ON ◄► OFF
S-VHS
3
1
QR6505
C
B
E
C6509
L6506
C6508
C6505
L6505
L6504
L6503
C6506
PHONES LEVEL
VR6502
6
5
1
R6513
R6514
R6515
AUDIO REC LEVEL (R)
VR6503
4
1
R6516
R6517
R6507
AUDIO REC LEVEL (L)
VR6504
4
1
QR6503
QR6504
J6501 (AV 3)
QR6502
L6501
L6502
AUDIO IN (R)
W3
W4
AUDIO IN (L)
VIDEO IN
R6508
R6506
R6503
W2
S-VIDEO IN
P6501
9
8
5
2
1
S-VHS
D6511
QR6501
QR6507
R6509
R6505
QR6506
C6502
R6510
R6511
C6501
D6504
3D DNR
D6505
POWER SAVE
R6502
R6501
R6504
IC6501
C6513
C6512
C6515
C6514
W1
S6504
6
4
3
1
REAR ◄► FRONT
D6503
INSERT
D6502
AUDIO DUB
R6518
P6502
23
15
5
1
22
20
10
2
PP6502
PP6501
C6504
C6503
C6507
A
B
C
1
2
3
4
5

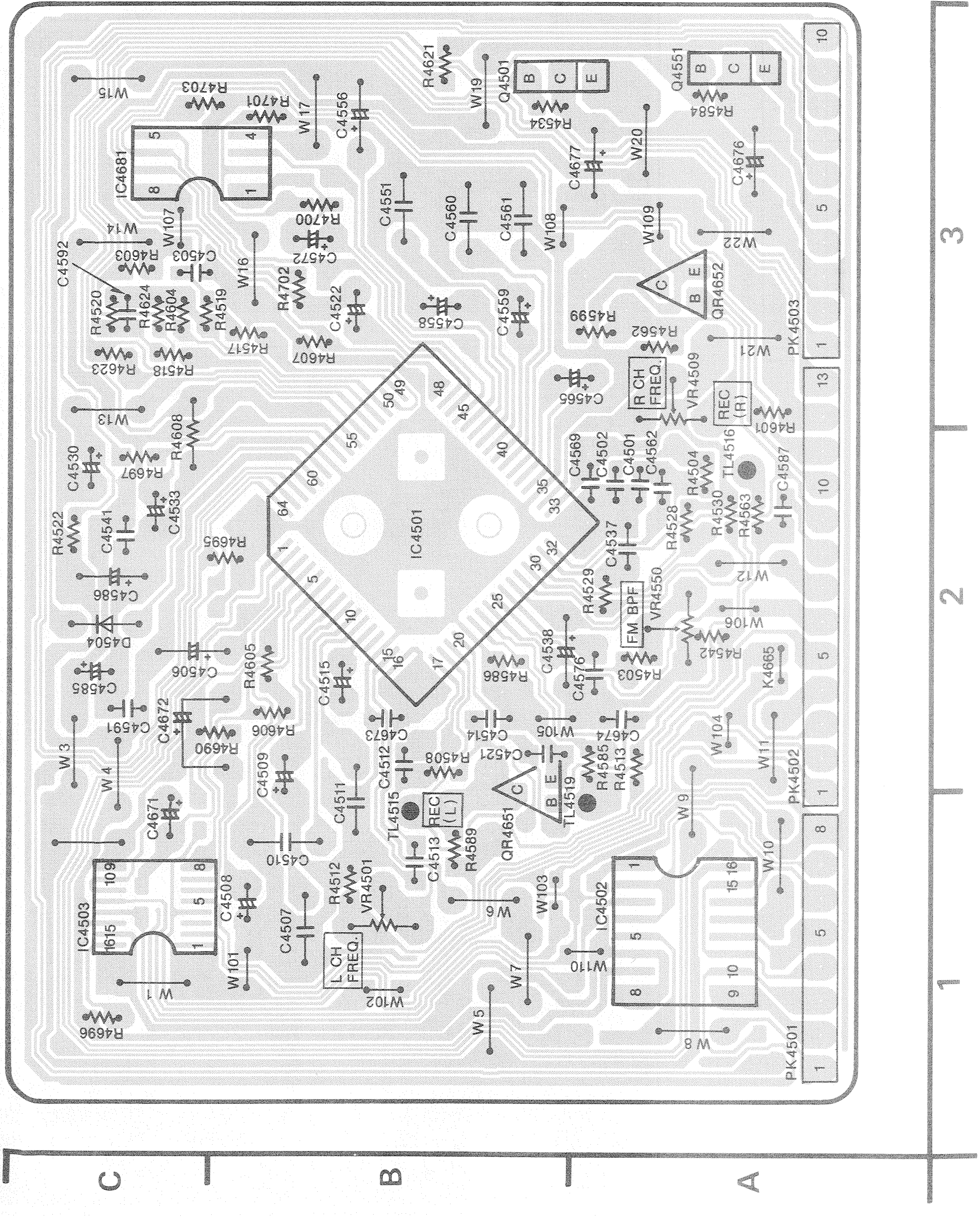
HEAD AMP C.B.A.	
Transistor	
Q501	A-3
Q502	A-3
Transistor & Resistor	
QR501	B-3
Integrated Circuit	
IC501	B-1
IC502	A-4
IC551	B-4
Test Point	
TL551	B-4
TP507	B-1
TP508	B-1
Connector	
P501	B-2
P502	A-1

ADDRESS INFORMATION

3-33. Hi-Fi AUDIO PACK C.B.A. (VEP04664C)

Hi-Fi AUDIO PACK C.B.A.	
Transistor	
Q4501	B-3
Q4551	A-3
Transistor & Resistor	
QR4651	B-2
QR4652	A-3
Integrated Circuit	
IC4501	B-2
IC4502	A-1
IC4503	C-1
IC4681	C-3
Test Point	
TL4515	B-1
TL4516	A-2
TL4519	A-1
Adjustment	
VR4501	B-1
VR4509	A-3
VR4550	A-2
Connector	
PK4501	A-1
PK4502	A-2
PK4503	A-3

ADDRESS INFORMATION



IC4501
IC4502
IC4503
IC4681
Q4501
Q4551
QR4651
QR4652
TL4515
TL4516
TL4519
VR4501
VR4509
VR4550
PK4501
PK4502
PK4503
L CH FREQ.
R CH FREQ.
FM BPF
REC (L)
REC (R)
W1
W3
W4
W5
W7
W8
W9
W10
W11
W12
W13
W14
W15
W16
W17
W19
W20
W21
W22
W101
W102
W103
W104
W105
W106
W107
W108
W109
W110
K4665
D4504
R4512
R4513
R4517
R4518
R4519
R4520
R4522
R4528
R4529
R4530
R4534
R4542
R4562
R4563
R4584
R4585
R4586
R4589
R4599
R4601
R4603
R4604
R4605
R4606
R4607
R4608
R4621
R4623
R4624
R4690
R4695
R4696
R4697
R4700
R4701
R4702
R4703
R4503
R4504
R4508
C4501
C4502
C4503
C4506
C4507
C4508
C4509
C4510
C4511
C4512
C4513
C4514
C4515
C4521
C4522
C4530
C4533
C4537
C4538
C4541
C4551
C4556
C4558
C4559
C4560
C4561
C4562
C4565
C4569
C4572
C4576
C4585
C4586
C4587
C4591
C4592
C4671
C4672
C4673
C4674
C4676
C4677
B
C
E
1
2
3
A
B
C

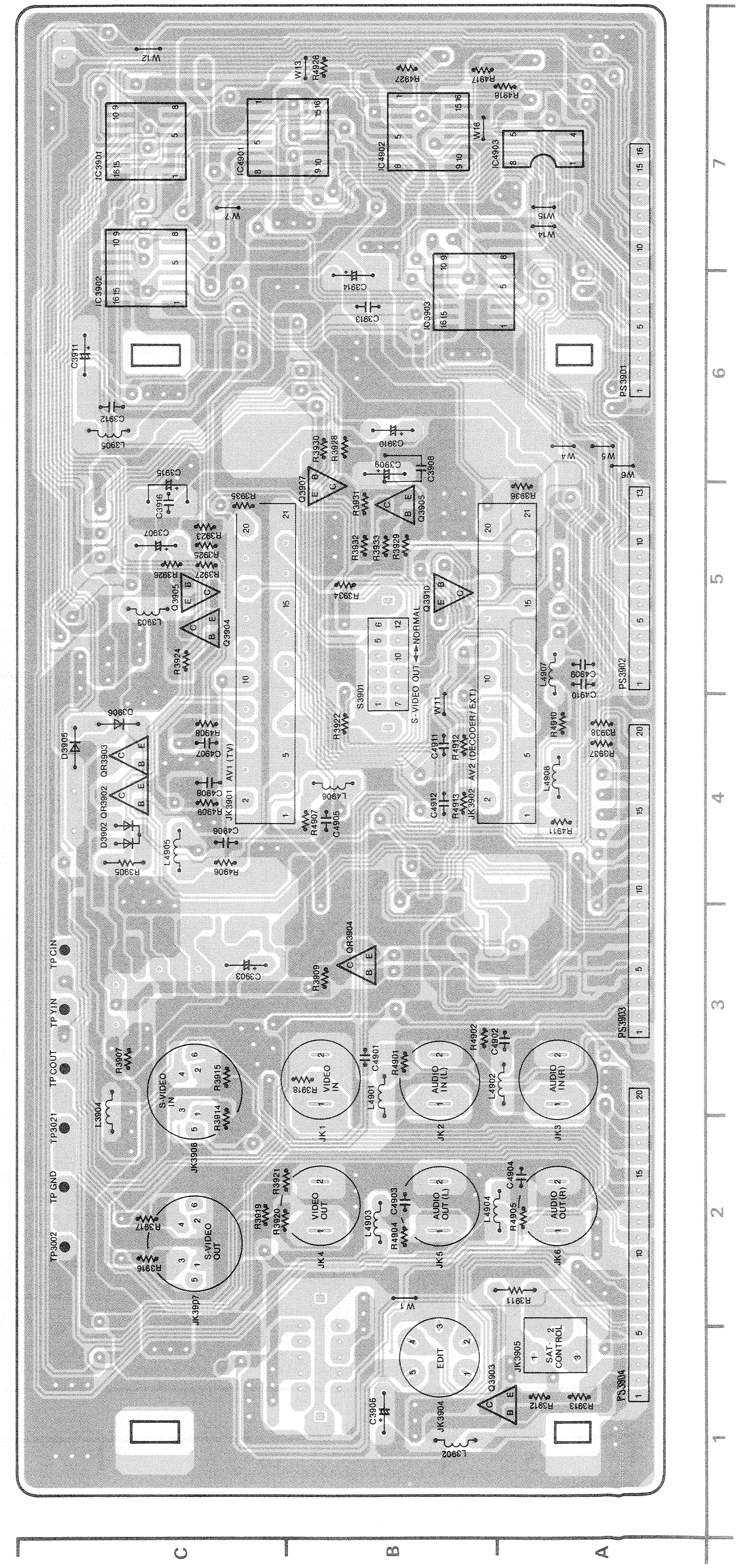
3-34. INPUT/OUTPUT PACK C.B.A. (VEP03D77A)

INPUT/OUTPUT PACK C.B.A.

Transistor		Integrated Circuit		Test Point	
Q3903	B-1	IC3901	C-7	TP3002	C-2
Q3904	C-5	IC3902	C-6	TP3021	C-2
Q3905	C-5	IC3903	B-6	TPCIN	C-3
Q3906	B-5	IC4901	C-7	TPCOUT	C-3
Q3907	B-5	IC4902	B-7	TPGND	C-2
Q3910	B-5	IC4903	A-7	TPYIN	C-3

Transistor & Resistor		Connector	
QR3902	C-4	PS3901	A-6
QR3903	C-4	PS3902	A-5
QR3904	B-3	PS3903	A-3
		PS3904	A-1

ADDRESS INFORMATION

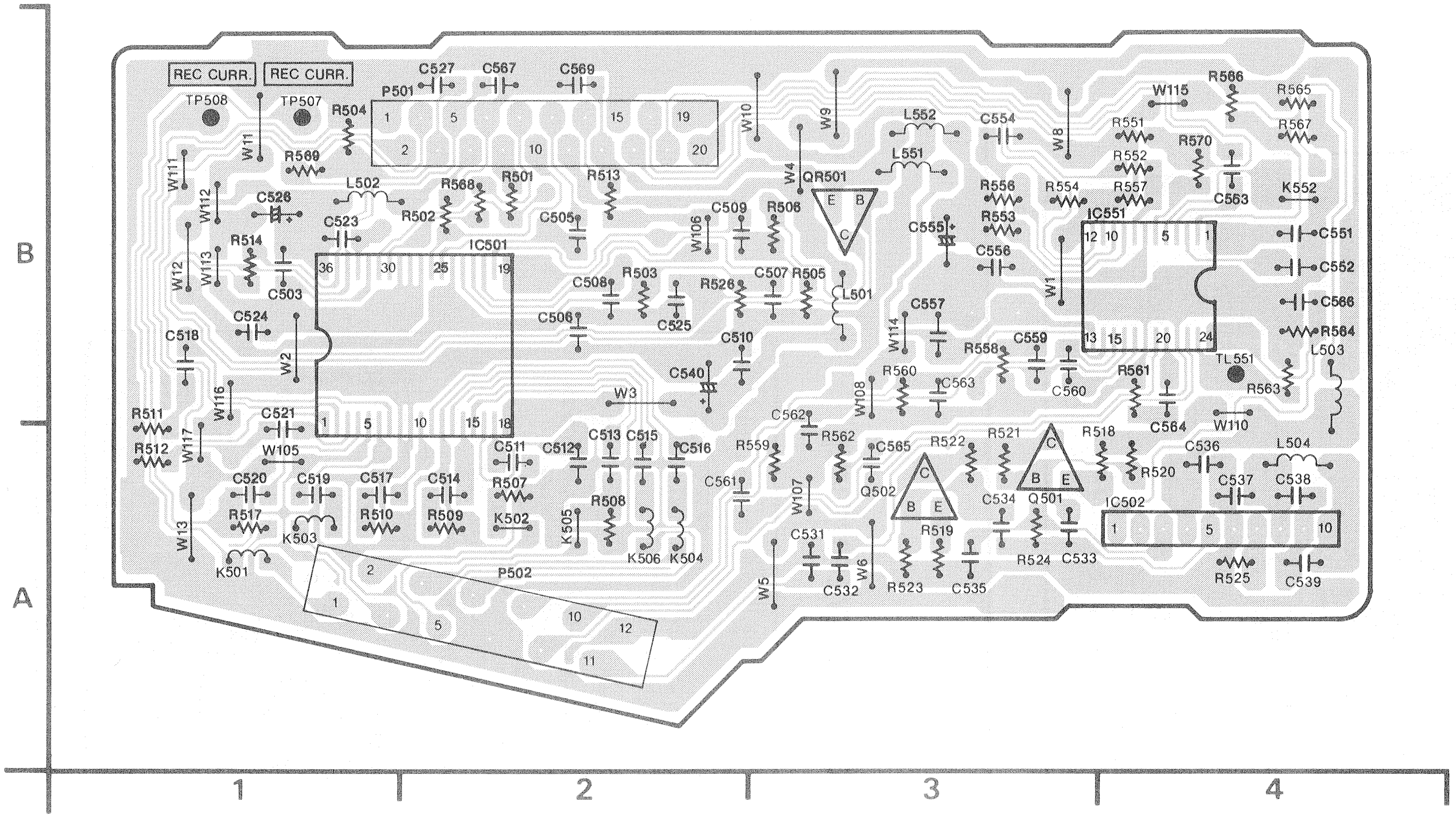


C
B
A
1
2
3
4
5
6
7
TP3002
TP GND
TP3021
TP COUT
TP YIN
TPCIN
JK3907
S-VIDEO OUT
JK3906
S-VIDEO IN
JK1
VIDEO IN
JK2
AUDIO IN (L)
JK3
AUDIO IN (R)
JK4
VIDEO OUT
JK5
AUDIO OUT (L)
JK6
AUDIO OUT (R)
JK3904
EDIT
JK3905
SAT. CONTROL
JK3901 AV1 (TV)
JK3902 AV2 (DECODER/EXT)
S3901
S-VIDEO OUT ↔ NORMAL
IC3901
IC3902
IC3903
IC4901
IC4902
IC4903
Q3903
Q3904
Q3905
Q3906
Q3907
Q3910
QR3902
QR3903
QR3904
D3902
D3905
D3906
PS3901
PS3902
PS3903
PS3904

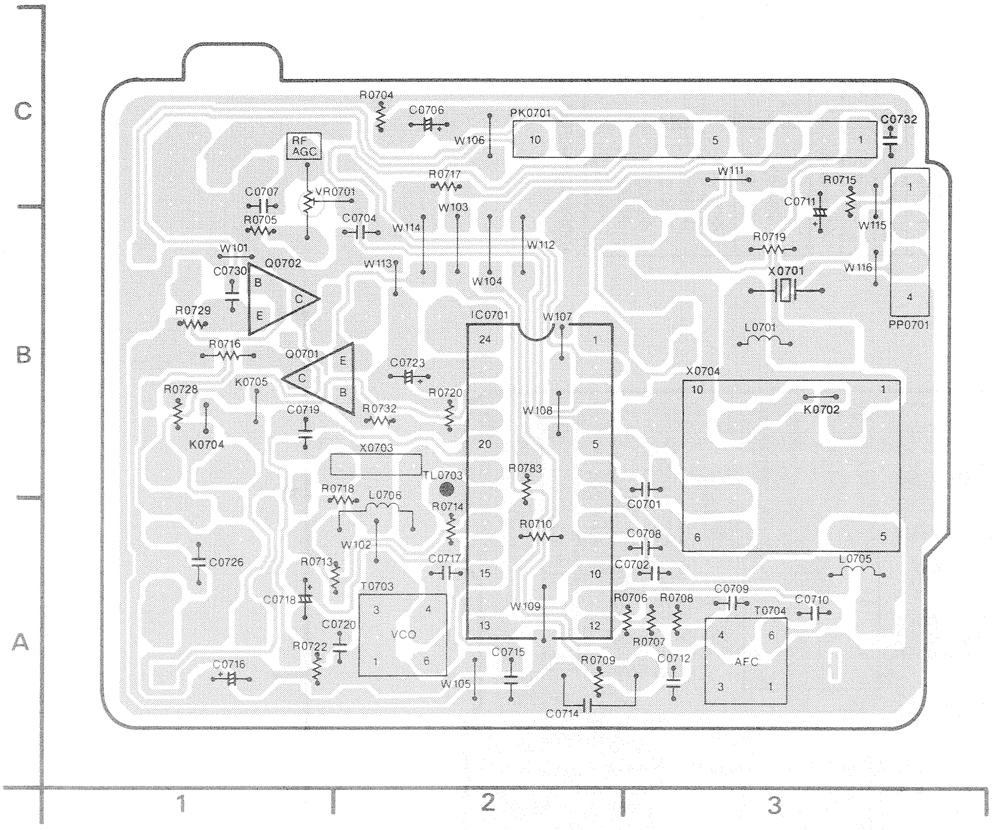
3-35. HEAD AMP C.B.A. (VEP05176M)

VR C.B.A.	
Transistor & Resistor	
QR6501	B-1
QR6502	B-2
QR6503	B-2
QR6504	B-2
QR6505	C-2
QR6506	B-2
QR6507	B-1
Integrated Circuit	
IC6501	B-3
Adjustment	
VR6502	B-3
VR6503	B-4
VR6504	B-5
Connector	
P6501	B-1
P6502	A-1
P6503	C-3
PP6501	A-4
PP6502	A-3

ADDRESS INFORMATION


REC CURR.
REC CURR.
TP508
TP507
P501
C527
C567
C569
R504
R569
W111
W11
W112
W12
W113
C526
L502
R568
R501
R513
R502
C523
IC501
C505
C506
C508
R503
C525
R514
C503
C524
C518
W2
W116
W117
R511
R512
C521
W105
C520
C519
C517
C514
C511
R507
K502
R517
R510
R509
K503
W13
K501
P502
C512
C513
C515
C516
R508
K505
K506
K504
W3
C540
C510
R526
C507
R505
L501
C509
R506
W106
W10
W9
W4
QR501
E
B
C
L552
L551
C554
W8
R556
R553
R554
C555
C556
C557
W114
R558
C559
C560
R560
C563
W108
C562
R562
C565
R559
C561
W107
C531
C532
W6
W5
Q502
R522
R521
Q501
R518
R520
R519
R523
C535
C534
R524
C533
IC551
R551
R552
R557
R570
C563
W115
R566
R565
R567
K552
C551
C552
C566
R564
L503
TL551
R563
R561
C564
W110
C536
L504
C537
C538
IC502
R525
C539
W1
1
2
3
4
A
B

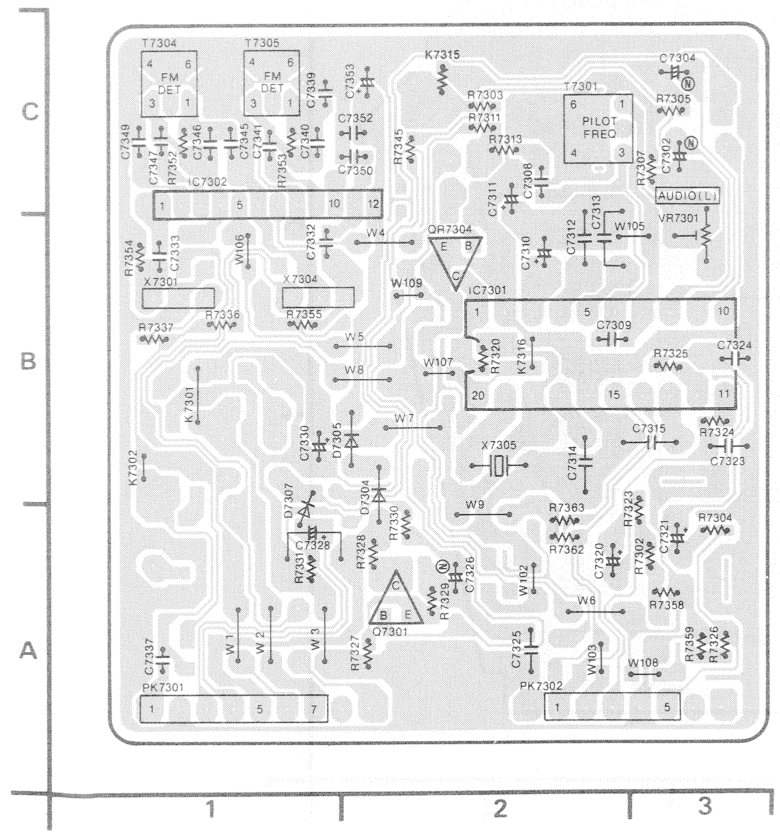
3-36. TV DEMODULATOR PACK C.B.A. (VEP07801AC)


C
B
A
1
2
3
RF AGC
R0704
C0706
PK0701
10
5
1
C0732
W106
R0717
W111
R0715
C0707
VR0701
C0711
R0705
W103
W115
C0704
W114
W112
R0719
W101
C0730
Q0702
B
C
E
W113
W104
X0701
W116
R0729
IC0701
W107
24
1
4
PP0701
L0701
R0716
Q0701
E
C
B
C0723
X0704
10
1
R0728
K0705
R0720
K0702
C0719
R0732
W108
K0704
X0703
20
5
R0718
TL0703
R0783
L0706
R0714
C0701
R0710
W102
C0708
6
5
C0726
R0713
C0717
C0702
L0705
15
10
C0718
T0703
3
4
R0706
R0708
C0709
C0710
W109
T0704
C0720
VCO
13
12
R0707
4
6
R0722
1
6
C0715
R0709
C0712
AFC
C0716
W105
3
1
C0714

TV DEMODULATOR PACK C.B.A.	
Transistor	
Q0701 Q0702	B-1 B-1
Integrated Circuit	
IC0701	B-2
Test Point	
TL0703	B-2
Adjustment	
T0703 T0704 VR0701	A-2 A-3 C-1
Connector	
PK0701 PP0701	C-2 C-3

ADDRESS INFORMATION

3-37. DECODER PACK C.B.A. (VEP07784E)


C
B
A
1
2
3
T7304
FM DET
4
6
3
1
T7305
FM DET
4
6
3
1
C7339
C7353
K7315
C7304
R7303
T7301
R7311
R7305
C7352
PILOT FREQ
6
1
4
3
C7349
C7347
R7352
C7346
C7345
C7341
R7353
C7340
C7350
R7345
R7313
R7307
C7302
IC7302
1
5
10
12
C7311
C7308
AUDIO(L)
VR7301
C7312
C7313
W105
R7354
C7333
W106
C7332
W4
QR7304
E
B
C
C7310
X7301
X7304
W109
IC7301
1
5
10
R7337
R7336
R7355
C7309
W5
W107
R7320
K7316
R7325
C7324
W8
20
15
11
K7301
W7
C7330
D7305
C7315
R7324
K7302
X7305
C7314
C7323
D7307
D7304
W9
R7363
R7323
R7304
C7328
R7328
R7330
R7362
C7320
R7302
C7321
R7331
R7329
C7326
W102
W6
Q7301
B
E
C
R7358
C7337
W1
W2
W3
R7327
C7325
W103
W108
R7359
R7326
PK7301
1
5
7
PK7302
1
5

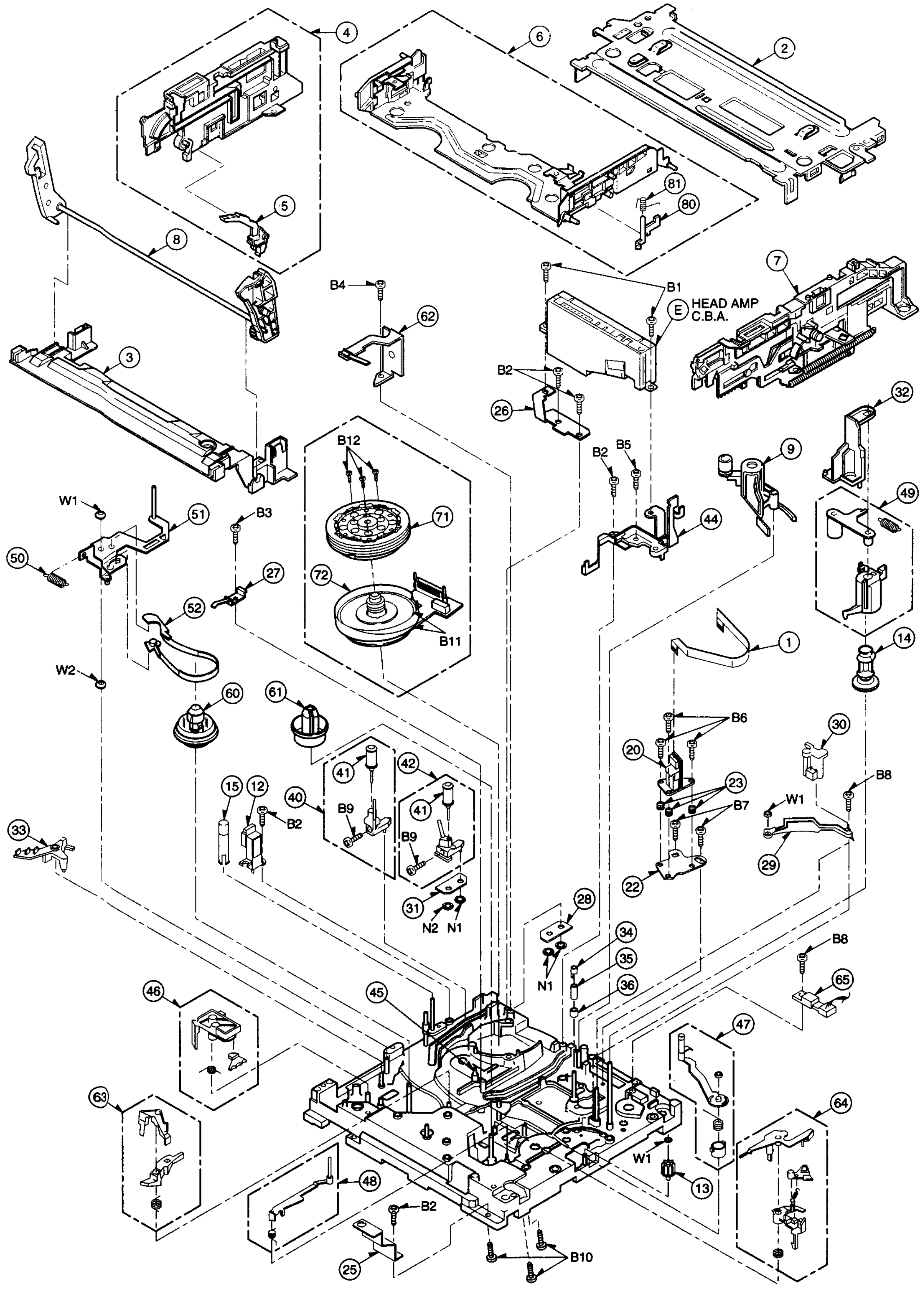
DECODER PACK C.B.A.	
Transistor	
Q7301	A-2
Transistor & Resistor	
QR7304	B-2
Integrated Circuit	
IC7301 IC7302	B-3 C-1
Adjustment	
T7301 T7304 T7305 VR7301	C-2 C-1 C-1 B-3
Connector	
PK7301 PK7302	A-1 A-2

ADDRESS INFORMATION

SECTION 4
EXPLODED VIEWS & PARTS LIST

4-1. EXPLODED VIEW & MECHANICAL REPLACEMENT PARTS LIST

❶ CHASSIS PARTS SECTION (1)

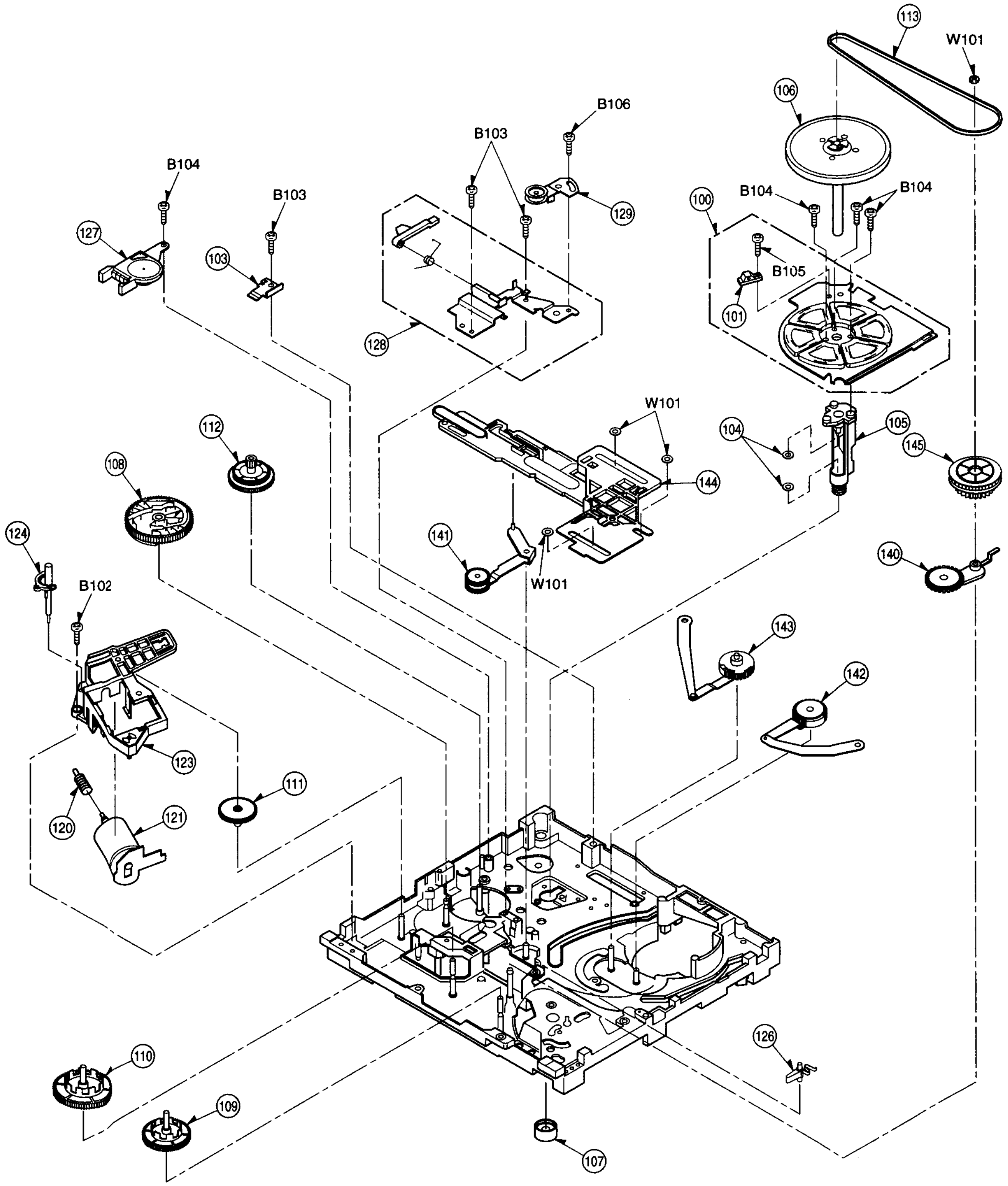


Note: 1. * Be sure to make your orders of replacement parts according to this list.
2. IMPORTANT SAFETY NOTICE
Components identified with the mark ⚠ have the special characteristics for safety. When replacing any of these components, use only the same type.

Ref. No.		Part No.	Part Name & Description	Pcs	Remarks
1	(1)	VWJ0743	FLEXIBLE CABLE (6P)	1	P4002-A/C HEAD
2	(1)	VMA8644	TOP PLATE	1	
3	(1)	VMA8787	CASSETTE GUIDE	1	
4	(1)	VXA4660	SIDE PLATE (L) UNIT	1	
5	(1)	VXL2250	OPENER LEVER UNIT	1	
6	(1)	VXA4661	CASSETTE HOLDER PLATE UNIT	1	
7	(1)	VXA4806	SIDE PLATE (R) UNIT	1	
8	(1)	VXP1339	MAIN SHAFT UNIT	1	
9	(1)	VXL2440	CLEANER ARM UNIT	1	
12	(1)	VBS0052	FE HEAD	1	
13	(1)	VDG0871	CARRIAGE CONNECTION GEAR	1	
14	(1)	VDG0886	PINCH CAM GEAR	1	
15	(1)	VXP1402	IMPEDANCE ROLLER UNIT	1	
20	(1)	VED0217	A/C HEAD (1) UNIT	1	
22	(1)	VMA8624	A/C HEAD BASE	1	
23	(1)	VMB2515	A/C HEAD SPRING	3	
25	(1)	VMA8761	MOUNT ANGLE	1	
26	(1)	VMA9158	HEAD AMP MOUNT ANGLE (L)	1	
27	(1)	VMC0917	EARTH SPRING	1	
28	(1)	VMA8874	INCLIND BASE HOLDER (S)	1	
29	(1)	VMD2078	P5 STOPPER BASE	1	
30	(1)	VXA4927	P5 POST STOPPER	1	
31	(1)	VMA8873	INCLIND BASE HOLDER (T)	1	
32	(1)	VMD2101	OPENER PIECE	1	
33	(1)	VML2776	TENSION SPRING ARM	1	
34	(1)	VMX1544	P4 UPPER LIMITER	1	
35	(1)	VMX2175	P4 SLEEVE	1	
36	(1)	VMX2176	P4 LOWER LIMITER	1	
40	(1)	VXA5245KIT	INCLINED BASE (S) UNIT	1	OR VXA4982KIT
41	(1)	VXP1826	ROLLER POST	2	
42	(1)	VXA5247KIT	INCLINED BASE (T) UNIT	1	OR VXA4984KIT
44	(1)	VXA4974	HEAD AMP MOUNT ANGLE (R) U.	1	
45	(1)	VMS5383	CASSETTE POSITION FIXTURE	1	
46	(1)	VXL2310	REVIEW ARM UNIT	1	
47	(1)	VXL2306	P5 ARM UNIT	1	
48	(1)	VXL2394	TAKE UP TENSION REG. ARM U	1	
49	(1)	VXL2246	PINCH ARM UNIT	1	
50	(1)	VMB2434	TENSION SPRING	1	
51	(1)	VXL2309	TENSION ARM (1) UNIT	1	
52	(1)	VXZ0310	TENSION BAND UNIT	1	
60	(1)	VXR0221	SUPPLY REEL TABLE UNIT	1	
61	(1)	VXR0237	TAKE UP REEL TABLE UNIT	1	
62	(1)	VXS0248	EARTH PLATE	1	
63	(1)	VXZ0312	SUPPLY BRAKE ARM UNIT	1	
64	(1)	VXZ0313	TAKE UP BRAKE ARM UNIT	1	
70	(1)	VEG1404	CYLINDER UNIT	1	
71	(1)	VXP1747	UPPER CYLINDER UNIT	1	
72	(1)	VSC4474	CYLINDER SHIELD PLATE	1	
80	(1)	VML2680	RELEASE LEVER	1	
81	(1)	VMB2013	RELEASE SPRING	1	
B1	(1)	VHD0773	SCREW	2	
B2	(1)	XTV26+6F	SCREW	5	
B3	(1)	XTV26+4F	SCREW	1	
B4	(1)	XTN3+8FFZ	SCREW	1	
B5	(1)	XTV26+10F	SCREW	1	
B6	(1)	VHD0762	SCREW	3	
B7	(1)	XTV26+6FZ	SCREW	2	
B8	(1)	XTV26+8F	SCREW	2	
B9	(1)	XQN2+AJ4	SCREW	2	
B10	(1)	VHD0342	SCREW	3	
B11	(1)	XYNV0029	SCREW	2	
N1	(1)	VHN0192	NUT	3	
N2	(1)	VHN0193	NUT	1	
W1	(1)	VMX2208	WASHER	3	
W2	(1)	XWGV26D5G	WASHER	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks

❷ CHASSIS PARTS SECTION (2)



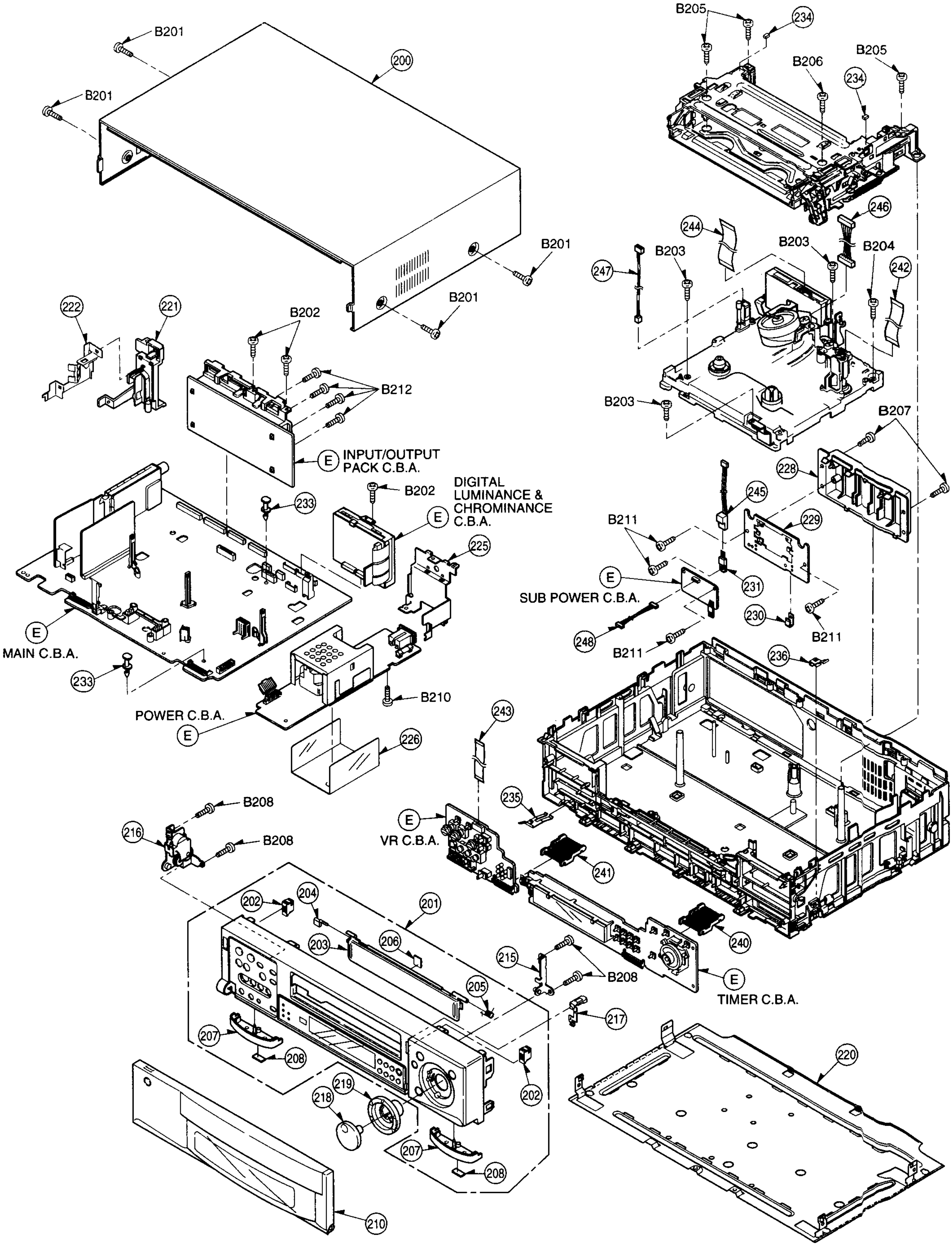
Note: 1. * Be sure to make your orders of replacement parts according to this list.
2. IMPORTANT SAFETY NOTICE
Components identified with the mark ⚠ have the special characteristics for safety. When replacing any of these components, use only the same type.

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
100 (2)	VEK5927	CAPSTAN STATOR UNIT	1	
101 (2)	VBK0061	FG HEAD	1	
103 (2)	VMA8930	ROTOR STOPPER	1	
104 (2)	VMX1927	OIL SEAL	2	
105 (2)	VXD0140	HOUSING UNIT	1	
106 (2)	VXP1519	CAPSTAN ROTOR UNIT	1	
107 (2)	VXQ0297	THRUST SCREW UNIT	1	
108 (2)	VDG0913	MAIN CAM GEAR	1	
109 (2)	VDG0956	SUPPLY REEL GEAR	1	
110 (2)	VDG0957	TAKE UP REEL GEAR	1	
111 (2)	VDG0868	WORM WHEEL GEAR	1	
112 (2)	VDG0885	SUB CAM GEAR	1	
113 (2)	VDV0235	TIMING BELT	1	
120 (2)	VDG0866	WORM GEAR	1	
121 (2)	VEM0427	LOADING MOTOR (1) UNIT	1	
123 (2)	VMD1942	MOTOR BRACKET	1	
124 (2)	VMD2552	S-VHS SW ACTUATER	1	
126 (2)	VML2725	IDLER CONTROL LEVER	1	
127 (2)	VSS0365	MODE SW	1	
128 (2)	VXA5138	SS BRAKE BASE UNIT	1	
129 (2)	VXA4799	TENSION ROLLER UNIT	1	
140 (2)	VXL2378	IDLER ARM UNIT	1	
141 (2)	VXL2372	DIRECT LEVER UNIT	1	
142 (2)	VXL2299	SUPPLY LOADING ARM UNIT	1	
143 (2)	VXL2300	TAKE UP LOADING ARM UNIT	1	
144 (2)	VXL2307	MAIN LEVER UNIT	1	
145 (2)	VXP1409	CENTRE CLUTCH	1	
B102 (2)	XTV26+8F	SCREW	1	
B103 (2)	XTV26+6F	SCREW	3	
B104 (2)	VHD0753	SCREW	4	
B105 (2)	VHD0754	SCREW	1	
B106 (2)	XSB26+4FZ	SCREW	1	
W101 (2)	VMX2208	WASHER	4	

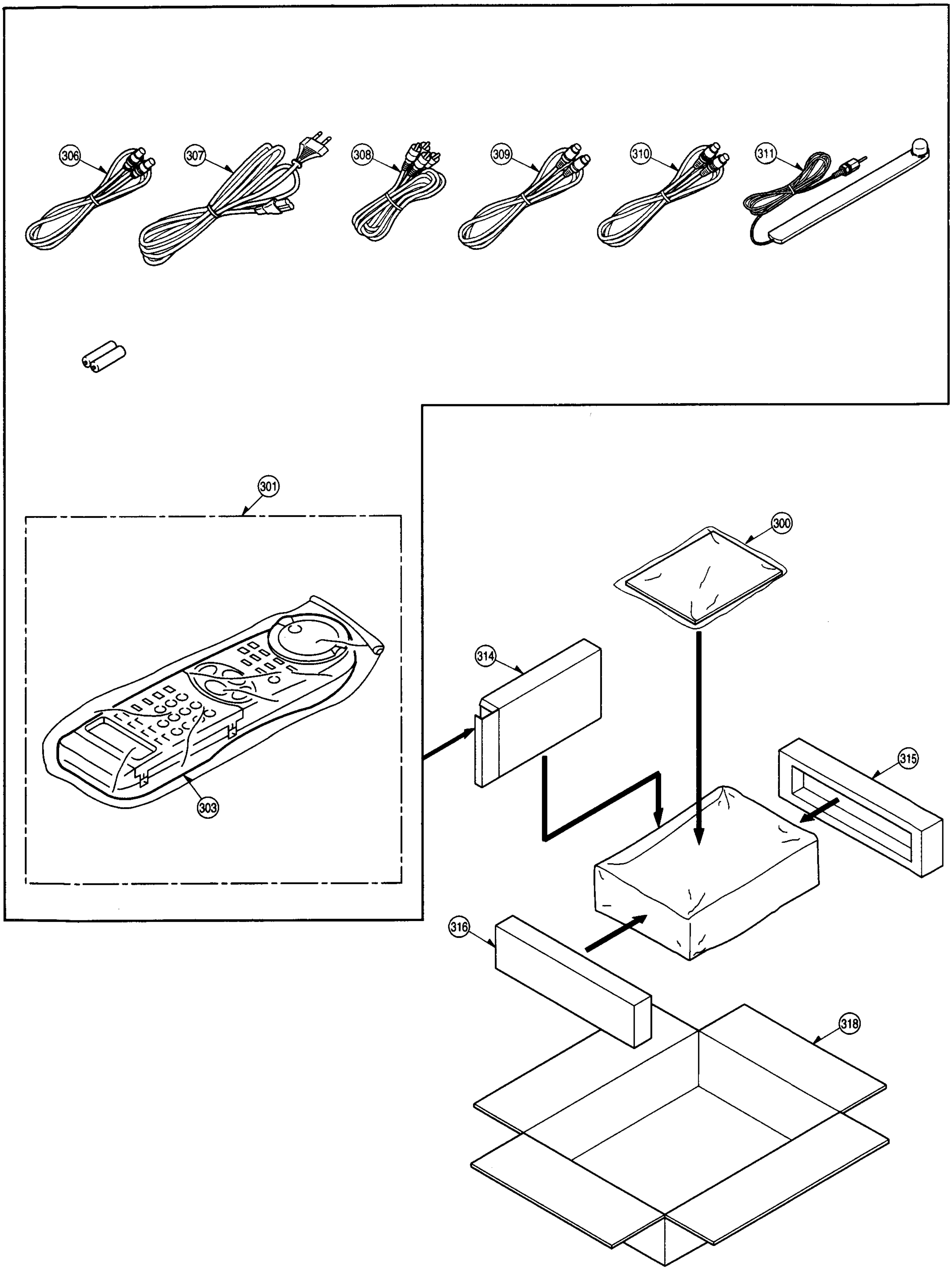
Note: 1. * Be sure to make your orders of replacement parts according to this list.
2. IMPORTANT SAFETY NOTICE
Components identified with the mark ⚠ have the special characteristics for safety. When replacing any of these components, use only the same type.

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
200 (3)	VGM1150	TOP PANEL	1	
201 (3)	VYP6479	FRONT PANEL (1) UNIT	1	
202 (3)	VGQ2216	DOOR MAGNET	2	
203 (3)	VKF2715	BLINDER PANEL	1	
204 (3)	VDK0148	BLINDER CAM	1	
205 (3)	VMB2521	BLINDER SPRING	1	
206 (3)	VMT0502	BLINDER CUSHION	1	
207 (3)	VKA0305	LEG	2	
208 (3)	VKA0122	FOOT	2	
210 (3)	VYF2383	DOOR PANEL UNIT	1	
215 (3)	VXA5429	DOOR ANGLE (R) UNIT	1	
216 (3)	VXA5879	DOOR ANGLE (L) UNIT	1	
217 (3)	VMC1226	FRONT EARTH SPRING	1	
218 (3)	VGU7530	JOG DIAL	1	
219 (3)	VGU7531	SHUTTLE RING	1	
220 (3)	VKU0412	BOTTOM PLATE	1	
221 (3)	VJH0979	ANTENNA JACK PLATE	1	
222 (3)	VMC1213	ANTENNA EARTH SPRING	1	
225 (3)	VMP4717	AC PLATE	1	
⚠ 226 (3)	VMZ2394	POWER BARRIER	1	
228 (3)	VKF2371	REAR COVER	1	
229 (3)	VSC4467	HEAT SINK	1	
230 (3)	VMC0357	TR. HOLDER SPRING	1	
231 (3)	2SB1370YD01E	POWER TRANSISTOR	1	
233 (3)	VMX2233	C. B. A. SPACER	2	
234 (3)	VMX2250	TOP SPACER	2	
235 (3)	VMC1062	JACK EARTH SPRING	1	
236 (3)	VMC1065	POWER EARTH SPRING	1	
240 (3)	VJP3673A025G	BRIDGE CONNECTOR (25P)	1	P3002—P7501
241 (3)	VJP3673A023G	BRIDGE CONNECTOR (23P)	1	P3003—P6502
242 (3)	VWJ0904B	FLAT CARD CABLE (15P)	1	P2501—CAPSTAN
243 (3)	VWJ1157	FLAT CARD CABLE (11P)	1	P3004—P6503
244 (3)	VWJ1171	FLAT CARD CABLE (20P)	1	P3001—P501
245 (3)	VEE8564	WIRE CABLE	1	P2502—POWER TR.
246 (3)	VEE0A24	WIRE CABLE	1	P2004—CYLINDER
247 (3)	VEE0A25	WIRE CABLE	1	P4002—FE HEAD
248 (3)	VEE0A26	WIRE CABLE	1	P3005—P1201
B201 (3)	XTW3+10TFZ	SCREW	4	
B204 (3)	VHD0773	SCREW	3	
B203 (3)	VHD0168	SCREW	3	
B204 (3)	VHD0874	SCREW	1	
B205 (3)	XTV26+8FR	SCREW	3	
B206 (3)	XTV26+10F	SCREW	1	
B207 (3)	XTV3+12JFZ	SCREW	2	
B208 (3)	XTN26+5GFZ	SCREW	4	
B210 (3)	VHD0418	SCREW	1	
B211 (3)	XTV3+8J	SCREW	4	
B212 (3)	XTV3+8GFZ	SCREW	4	

❸ CASING PARTS SECTION


B201
200
B201
B201
B201
222
221
B202
B212
E
INPUT/OUTPUT PACK C.B.A.
B202
E
DIGITAL LUMINANCE & CHROMINANCE C.B.A.
233
225
E
MAIN C.B.A.
233
B210
POWER C.B.A.
E
226
B205
234
B206
B205
234
246
244
B203
B203
B204
247
242
B203
B207
228
245
229
B211
E
231
SUB POWER C.B.A.
230
B211
248
B211
236
243
235
E
VR C.B.A.
241
240
E
TIMER C.B.A.
B208
216
B208
202
204
201
203
206
215
B208
205
217
207
208
202
219
218
220
207
208
210

❹ PACKING PARTS SECTION


306
307
308
309
310
311
301
300
314
315
303
316
318

Note: 1. * Be sure to make your orders of replacement parts according to this list.
2. IMPORTANT SAFETY NOTICE
Components identified with the mark ⚠ have the special characteristics for safety. When replacing any of these components, use only the same type.

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
⚠ 300 (4)	VQT6877	OPERATING INSTRUCTIONS	1	
		(ENGLISH/FRENCH/DUTCH)		
⚠ 300 (4)	VQT6878	OPERATING INSTRUCTIONS	1	
		(GERMAN/ITALIAN)		
301 (4)	EUR571403	REMOTE CONTROLLER	1	
303 (4)	UR57EC559C	BATTERY COVER	1	
306 (4)	VJA0963	DIN RF CABLE	1	
⚠ 307 (4)	VJA0664	AC CORD	1	
308 (4)	VJA0231	AUDIO CABLE	1	
309 (4)	VJA0658	S-VIDEO 4P CABLE	1	
310 (4)	VJA0787	EDIT 5P CABLE	1	
311 (4)	VEK7557	SAT CONTROL CABLE	1	
314 (4)	VPK0825	ACCESSORIES PACKING	1	
315 (4)	VPN4653	CUSHION (R)	1	
316 (4)	VPN4654	CUSHION (L)	1	
318 (4)	VPG8958	PACKING	1	
		SERVICE FIXTURES & TOOLS		
	VFJ8125H3F	VHS ALIGNMENT TAPE (PAL)	1	
	VFK0335	RETAINING RING REMOVER	1	
		(3MM/4MM)		
	VFK0329	POST ADJUSTMENT SCREWDRIVER	1	
	VFK0326	HEX WRENCH SET	1	
	VFK0132	BACK TENSION METER	1	
	VFK27	HEAD CLEANING STICK	1	
	VFK1024	MORLYTONE GREASE	1	
	VFK0680	WHITE GREASE	1	
	VFK0851	CENTRE FIXING TOOL	1	
	VFK0330	FINE ADJUSTMENT GEAR DRIVER	1	
	VFK1140	11P EXTENSION CABLE	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks

4-2. ELECTRICAL REPLACEMENT PARTS LIST

Note: 1. Be sure to make your orders of replacement parts according to this list.
2. IMPORTANT SAFETY NOTICE : Components identified with the mark ⚠ have the special characteristics for safety. When replacing any of these components, use only the same type.
3. Unless otherwise specified,
All resistors are in OHMS, K=1,000 OHMS. All capacitors are in MICROFARADS(uf), P=uuF.
4. The P.C. Board units marked width "■" show below the main assembled parts.
5. The marking (RTL) indicaters the retention time is limited for this item.
After the discontinuation of this assembly in production, it will no longer be available.

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
■	VEP06B83A	MAIN C.B.A.	1	(RTL)
		(Page:4-8)		INCLUDING THE
				HI-FI AUDIO PACK C.B.A.
				(VEP04664C),
				DECODER PACK C.B.A.
				(VEP07784E),
				TV DEMODULATOR PACK
				C.B.A. (VEP07801AC).
■	VEP04664C	HI-FI AUDIO PACK C.B.A.	1	(RTL)
				C.B.A. IS INCLUDED IN
				MAIN C.B.A. (VEP06B83A).
■	VEP07784E	DECODER PACK C.B.A.	1	(RTL)
				C.B.A. IS INCLUDED IN
				MAIN C.B.A. (VEP06B83A).
■	VEP07801AC	TV DEMODULATOR PACK C.B.A	1	(RTL)
				C.B.A. IS INCLUDED IN
				MAIN C.B.A. (VEP06B83A).
■	VEP03D77A	INPUT/OUTPUT C.B.A.	1	(RTL)
		(Page:4-14)		
■	VEP05176M	HEAD AMP C.B.A.	1	(RTL)
		(Page:4-14)		
■	VEP07951A	TIMER C.B.A.	1	(RTL)
		(Page:4-15)		
■	VEP03D75A	DIGITAL C.B.A.	1	(RTL)
		(Page:4-16)		INCLUDING THE ANALOG
				Y/C C.B.A. (VEP03D76A).
■	VEP03D76A	ANALOG Y/C C.B.A.	1	(RTL)
				C.B.A. IS INCLUDED IN
				DIGITAL C.B.A.
				(VEP03D75A).
				INCLUDING THE
				AFC C.B.A. (VEP03E17A).
■	VEP03E17A	AFC C.B.A.	1	(RTL)
				C.B.A. IS INCLUDED IN
				ANALOG Y/C C.B.A.
				(VEP03D76A).
■	VEP06B84A	VR C.B.A.	1	(RTL)
		(Page:4-19)		INCLUDING THE FRONT
				JACK C.B.A. (VEP04531A).
■	VEP04531A	FRONT JACK C.B.A.	1	(RTL)
				C.B.A. IS INCLUDED IN
				VR C.B.A. (VEP06B84A).
■	VEP01804A	SUB POWER C.B.A.	1	(RTL)
		(Page:4-20)		
⚠ ■	VEP01639A	POWER C.B.A.	1	(RTL)
		(Page:4-20)		
■	----------	MOTOR C.B.A.	1	C.B.A. IS INCLUDED IN
		(Page:4-21)		LOADING MOTOR (1) UNIT
				(VEM0427).
⚠ TU7601	ENG47259G1	TUNER	1	
⚠ F1101	XBA2C16TH15	FUSE	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
■	VEP06B83A	MAIN C.B.A.		(RTL)
C0701, 02	ECUX1H103ZFV	C. CAPACITOR CH 50V 0.01U	2	
C0704	ECUX1H331JCV	C. CAPACITOR CH 50V 330P	1	
C0706	ECEA1HKA0R1	E. CAPACITOR 50V 0.1U	1	
C0707, 08	ECUX1H103ZFV	C. CAPACITOR CH 50V 0.01U	2	
C0709	ECUX1H120JCV	C. CAPACITOR CH 50V 12P	1	
C0710	ECUX1H470JPV	C. CAPACITOR CH 50V 47P	1	
C0711	ECEA1CKA100	E. CAPACITOR 16V 10U	1	
C0712	ECUX1H103ZFV	C. CAPACITOR CH 50V 0.01U	1	
C0714	ECQB1H473JF	P. CAPACITOR 50V 0.047U	1	
C0715	ECUM1H103ZFN	C. CAPACITOR CH 50V 0.01U	1	
C0716	ECEA1CKA470	E. CAPACITOR 16V 47U	1	
C0717	ECUX1H270JPV	C. CAPACITOR CH 50V 27P	1	
C0718	ECEA1HKSR47	E. CAPACITOR 50V 0.47U	1	
C0719	ECUX1H120JCV	C. CAPACITOR CH 50V 12P	1	
C0720	ECUX1H103ZFV	C. CAPACITOR CH 50V 0.01U	1	
C0723	ECEA1HKA0R1	E. CAPACITOR 50V 0.1U	1	
C0726	ECUX1H103ZFV	C. CAPACITOR CH 50V 0.01U	1	
C0730	ECUX1H103ZFV	C. CAPACITOR CH 50V 0.01U	1	
C0732	ECUX1H103ZFV	C. CAPACITOR CH 50V 0.01U	1	
C1001	ECUM1H103ZFN	C. CAPACITOR CH 50V 0.01U	1	
C1002	ECEA1CU470	E. CAPACITOR 16V 47U	1	
C1003	ECEA1CKS101	E. CAPACITOR 16V 100U	1	
C1004	ECUM1H103ZFN	C. CAPACITOR CH 50V 0.01U	1	
C1005	ECEA1AKA220	E. CAPACITOR 10V 22U	1	
C1006	ECEA0JKA101	E. CAPACITOR 6.3V 100U	1	
C1007	ECUM1H103ZFN	C. CAPACITOR CH 50V 0.01U	1	
C1008	ECEA1AKA220	E. CAPACITOR 10V 22U	1	
C1009	ECEA0JKA101	E. CAPACITOR 6.3V 100U	1	
C1013	ECUM1H104ZFN	C. CAPACITOR CH 50V 0.1U	1	
C1014	ECUM1H103ZFN	C. CAPACITOR CH 50V 0.01U	1	
C1016	ECEA1AKA220	E. CAPACITOR 10V 22U	1	
C1019	ECUM1H103ZFN	C. CAPACITOR CH 50V 0.01U	1	
C1020	ECEA0JKA101	E. CAPACITOR 6.3V 100U	1	
C2030	ECUM1H473ZFN	C. CAPACITOR CH 50V 0.047U	1	
C2032-34	ECEA1VKN2R2	E. CAPACITOR 35V 2.2U	3	
C2035	ECUM1E683KBN	C. CAPACITOR CH 25V 0.068U	1	
C2036-38	ECUM1E104KBN	C. CAPACITOR CH 25V 0.1U	3	
C2040	ECUM1C274KBN	C. CAPACITOR CH 16V 0.27U	1	
C2041	ECEA1HKAR47	E. CAPACITOR 50V 0.47U	1	
C2042	ECEA0JKA101	E. CAPACITOR 6.3V 100U	1	
C2047	ECEA1AKS221	E. CAPACITOR 10V 220U	1	
C2048	ECUM1H472KBN	C. CAPACITOR CH 50V 4700P	1	
C2049	ECQV1H683B46	P. CAPACITOR 50V 0.068U	1	
C2050, 51	ECUM1H102KBN	C. CAPACITOR CH 50V 1000P	2	
C2052, 53	ECUM1C105ZFN	C. CAPACITOR CH 16V 1U	2	
C2054, 55	ECUM1H101JCN	C. CAPACITOR CH 50V 100P	2	
C2056	ECEA1EKS4R7	E. CAPACITOR 25V 4.7U	1	
C2057, 58	ECEA1ESN3R3	E. CAPACITOR 25V 3.3U	2	
C2059	ECUM1H222KBN	C. CAPACITOR CH 50V 2200P	1	
C2060	ECUM1H471JCN	C. CAPACITOR CH 50V 470P	1	
C2061	ECEA1AKS221	E. CAPACITOR 10V 220U	1	
C2062	ECEA1CKS100	E. CAPACITOR 16V 10U	1	
C2063	ECUM1H103ZFN	C. CAPACITOR CH 50V 0.01U	1	
C2064	ECEA0JKS470	E. CAPACITOR 6.3V 47U	1	
C2065	ECEA0JKA470	E. CAPACITOR 6.3V 47U	1	
C2066	ECUM1H103ZFN	C. CAPACITOR CH 50V 0.01U	1	
C2067	ECUM1H223KBN	C. CAPACITOR CH 50V 0.022U	1	
C2068	ECUM1H104ZFN	C. CAPACITOR CH 50V 0.1U	1	
C2069	ECUM1H392KBN	C. CAPACITOR CH 50V 3900P	1	
C2070	ECUM1H222KBN	C. CAPACITOR CH 50V 2200P	1	
C2071	ECUM1H104ZFN	C. CAPACITOR CH 50V 0.1U	1	
C2501	ECEA1HKS2R2	E. CAPACITOR 50V 2.2U	1	
C2502	ECA1CM221	E. CAPACITOR 16V 220U	1	
C2504, 05	ECUM1C474ZFN	C. CAPACITOR CH 16V 0.47U	2	
C2506, 07	ECUM1H680JCN	C. CAPACITOR CH 50V 68P	2	
C2508-10	ECUM1H333KBN	C. CAPACITOR CH 50V 0.033U	3	
C2511	ECUM1E104KBN	C. CAPACITOR CH 25V 0.1U	1	
C2512	ECEA1HKS2R2	E. CAPACITOR 50V 2.2U	1	
C2513	ECEA1HKA2R2	E. CAPACITOR 50V 2.2U	1	
C2514	ECA1EM470	E. CAPACITOR 25V 47U	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
C2515	ECEA1HKNR22	E. CAPACITOR 50V 0. 22U	1	
C2516	ECEA1HKA010	E. CAPACITOR 50V 1U	1	
C2518, 19	ECUM1H333KBN	C. CAPACITOR CH 50V 0. 033U	2	
C2520	ECUM1H103ZFN	C. CAPACITOR CH 50V 0. 01U	1	
C2521	ECA0JM221	E. CAPACITOR 6. 3V 220U	1	
C2524	ECQV1H683B46	P. CAPACITOR 50V 0. 068U	1	
C2525, 26	ECUM1H102KBN	C. CAPACITOR CH 50V 1000P	2	
C3001	ECEA1CKS470	E. CAPACITOR 16V 47U	1	
C3002, 03	ECUM1H104ZFN	C. CAPACITOR CH 50V 0. 1U	2	
C3004	ECEA0JKA470	E. CAPACITOR 6. 3V 47U	1	
C3005-07	ECUM1H102JCN	C. CAPACITOR CH 50V 1000P	3	
C3008-11	ECUM1H103ZFN	C. CAPACITOR CH 50V 0. 01U	4	
C3012	ECEA0JKS470	E. CAPACITOR 6. 3V 47U	1	
C3013	ECUM1H103ZFN	C. CAPACITOR CH 50V 0. 01U	1	
C3014	ECUM1H102KBN	C. CAPACITOR CH 50V 1000P	1	
C3015	ECUM1H104ZFN	C. CAPACITOR CH 50V 0. 1U	1	
C3016-19	ECUM1H102KBN	C. CAPACITOR CH 50V 1000P	4	
C3020	ECUM1H103ZFN	C. CAPACITOR CH 50V 0. 01U	1	
C4001	ECEA1AKA220	E. CAPACITOR 10V 22U	1	
C4002	ECQB1H223JF	P. CAPACITOR 50V 0. 022U	1	
C4003	ECKD2H471KB5	C. CAPACITOR 500V 470P	1	
C4004, 05	ECUM1H103ZFN	C. CAPACITOR CH 50V 0. 01U	2	
C4006, 07	ECEA1CKA100	E. CAPACITOR 16V 10U	2	
C4008	ECEA1AKA101	E. CAPACITOR 10V 100U	1	
C4009	ECEA0JKA221	E. CAPACITOR 6. 3V 220U	1	
C4010	ECUM1H682KBN	C. CAPACITOR CH 50V 6800P	1	
C4011	ECQV1H104B46	P. CAPACITOR 50V 0. 1U	1	
C4012	ECUM1H222JCN	C. CAPACITOR CH 50V 2200P	1	
C4013, 14	ECUM1H223KBN	C. CAPACITOR CH 50V 0. 022U	2	
C4016	ECEA0JKA470	E. CAPACITOR 6. 3V 47U	1	
C4017	ECUM1H682KBN	C. CAPACITOR CH 50V 6800P	1	
C4018	ECEA1HKS0R1	E. CAPACITOR 50V 0. 1U	1	
C4019, 20	ECEA1HKA0R1	E. CAPACITOR 50V 0. 1U	2	
C4021	ECUM1H103KBN	C. CAPACITOR CH 50V 0. 01U	1	
C4022	ECUM1H682KBN	C. CAPACITOR CH 50V 6800P	1	
C4023	ECUM1C105ZFN	C. CAPACITOR CH 16V 1U	1	
C4024	ECUM1H272KBN	C. CAPACITOR CH 50V 2700P	1	
C4025, 26	ECEA1CKA220	E. CAPACITOR 16V 22U	2	
C4027	ECEA1HKS3R3	E. CAPACITOR 50V 3. 3U	1	
C4028	ECEA1CKA470	E. CAPACITOR 16V 47U	1	
C4029, 30	ECUM1H102JCN	C. CAPACITOR CH 50V 1000P	2	
C4031	ECEA1CKS101	E. CAPACITOR 16V 100U	1	
C4032	ECUM1H822KBN	C. CAPACITOR CH 50V 8200P	1	
C4033, 34	ECUM1H471JCN	C. CAPACITOR CH 50V 470P	2	
C4035	ECUM1H562KBN	C. CAPACITOR CH 50V 5600P	1	
C4036	ECEA1CKA100	E. CAPACITOR 16V 10U	1	
C4037	ECEA1CKS100	E. CAPACITOR 16V 10U	1	
C4038	ECUM1H104ZFN	C. CAPACITOR CH 50V 0. 1U	1	
C4039	ECUM1H220JCN	C. CAPACITOR CH 50V 22P	1	
C4040	ECUM1H102JCN	C. CAPACITOR CH 50V 1000P	1	
C4042	ECUM1H222JCN	C. CAPACITOR CH 50V 2200P	1	
C4043	ECEA0JKA331	E. CAPACITOR 6. 3V 330U	1	
C4044	ECEA1HKA4R7	E. CAPACITOR 50V 4. 7U	1	
C4045	ECUM1H104ZFN	C. CAPACITOR CH 50V 0. 1U	1	
C4046	ECEA1CKA100	E. CAPACITOR 16V 10U	1	
C4047	ECUM1H103ZFN	C. CAPACITOR CH 50V 0. 01U	1	
C4048, 49	ECEA1CKA100	E. CAPACITOR 16V 10U	2	
C4050	ECUM1H104ZFN	C. CAPACITOR CH 50V 0. 1U	1	
C4501	ECUX1H681JCV	C. CAPACITOR CH 50V 680P	1	
C4502	ECUX1H561JCV	C. CAPACITOR CH 50V 560P	1	
C4503	ECUX1H102KBV	C. CAPACITOR CH 50V 1000P	1	
C4506	ECA1CAK100X	E. CAPACITOR 16V 10U	1	
C4507	ECQB1H223JF	P. CAPACITOR 50V 0. 022U	1	
C4508	ECA1HAK4R7X	E. CAPACITOR 50V 4. 7U	1	
C4509	ECA1CAK470X	E. CAPACITOR 16V 47U	1	
C4510	ECQB1H103JF	P. CAPACITOR 50V 0. 01U	1	
C4511	ECQB1H332JF	P. CAPACITOR 50V 3300P	1	
C4512	ECUX1H561JCV	C. CAPACITOR CH 50V 560P	1	
C4513	ECUM1H681JCN	C. CAPACITOR CH 50V 680P	1	
C4514	ECUM1H561JCN	C. CAPACITOR CH 50V 560P	1	
C4515	ECA1HAK4R7X	E. CAPACITOR 50V 4. 7U	1	
C4521	ECUM1H473KBN	C. CAPACITOR CH 50V 0. 047U	1	
C4522	ECA1HAK4R7X	E. CAPACITOR 50V 4. 7U	1	
C4530	ECA0JAK470X	E. CAPACITOR 6. 3V 47U	1	
C4533	ECA1CAK470X	E. CAPACITOR 16V 47U	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
C4537	ECUM1H102JCN	C. CAPACITOR CH 50V 1000P	1	
C4538	ECA1HAKR47X	E. CAPACITOR 50V 0. 47U	1	
C4541	ECUM1H104ZFN	C. CAPACITOR CH 50V 0. 1U	1	
C4551	ECQB1H223JF	P. CAPACITOR 50V 0. 022U	1	
C4556	ECA1CAK100X	E. CAPACITOR 16V 10U	1	
C4558	ECA1HAK4R7X	E. CAPACITOR 50V 4. 7U	1	
C4559	ECA1CAK470X	E. CAPACITOR 16V 47U	1	
C4560	ECQB1H103JF	P. CAPACITOR 50V 0. 01U	1	
C4561	ECQB1H332JF	P. CAPACITOR 50V 3300P	1	
C4562	ECUX1H561JCV	C. CAPACITOR CH 50V 560P	1	
C4565	ECA1HAK4R7X	E. CAPACITOR 50V 4. 7U	1	
C4569	ECUX1C104ZFV	C. CAPACITOR CH 16V 0. 1U	1	
C4572	ECA1HAK4R7X	E. CAPACITOR 50V 4. 7U	1	
C4576	ECUM1H473KBN	C. CAPACITOR CH 50V 0. 047U	1	
C4585, 86	ECA0JAK101X	E. CAPACITOR 6. 3V 100U	2	
C4587	ECUM1H103ZFN	C. CAPACITOR CH 50V 0. 01U	1	
C4591	ECUM1H104ZFN	C. CAPACITOR CH 50V 0. 1U	1	
C4592	ECUX1H102KBV	C. CAPACITOR CH 50V 1000P	1	
C4671, 72	ECA1CAK100X	E. CAPACITOR 16V 10U	2	
C4673	ECUX1C104ZFV	C. CAPACITOR CH 16V 0. 1U	1	
C4674	ECUM1H104ZFN	C. CAPACITOR CH 50V 0. 1U	1	
C4676	ECA1VAK470X	E. CAPACITOR 35V 47U	1	
C4677	ECA1CAK470X	E. CAPACITOR 16V 47U	1	
C6001, 02	ECUM1H104ZFN	C. CAPACITOR CH 50V 0. 1U	2	
C6004	ECA1EM470	E. CAPACITOR 25V 47U	1	
C6005	ECUM1C224ZFN	C. CAPACITOR CH 16V 0. 22U	1	
C6006-10	ECUM1H104ZFN	C. CAPACITOR CH 50V 0. 1U	5	
C6011	ECEA1HKS2R2	E. CAPACITOR 50V 2. 2U	1	
C6012	ECUM1H104ZFN	C. CAPACITOR CH 50V 0. 1U	1	
C6013	ECEA0JKS470	E. CAPACITOR 6. 3V 47U	1	
C6014, 15	ECUM1H150JCN	C. CAPACITOR CH 50V 15P	2	
C6016, 17	ECUM1H102KBN	C. CAPACITOR CH 50V 1000P	2	
C6018	ECUX1H561JCN	C. CAPACITOR CH 50V 560P	1	
C6019-22	ECUM1H271JCN	C. CAPACITOR CH 50V 270P	4	
C6023	ECEA1CKS100	E. CAPACITOR 16V 10U	1	
C6024	ECUM1H103ZFN	C. CAPACITOR CH 50V 0. 01U	1	
C6025	ECUM1H102KBN	C. CAPACITOR CH 50V 1000P	1	
C6026	ECUM1H103ZFN	C. CAPACITOR CH 50V 0. 01U	1	
C6027, 28	ECUM1H104ZFN	C. CAPACITOR CH 50V 0. 1U	2	
C6701	ECEA0JKA470	E. CAPACITOR 6. 3V 47U	1	
C6702, 03	ECUM1H104ZFN	C. CAPACITOR CH 50V 0. 1U	2	
C6704	ECUM1H470JCN	C. CAPACITOR CH 50V 47P	1	
C6705, 06	ECUM1H104ZFN	C. CAPACITOR CH 50V 0. 1U	2	
C6707	ECUM1H103ZFN	C. CAPACITOR CH 50V 0. 01U	1	
C6708	ECUM1H104ZFN	C. CAPACITOR CH 50V 0. 1U	1	
C6709	ECEA0JKS101	E. CAPACITOR 6. 3V 100U	1	
C6710	ECEA0JKS470	E. CAPACITOR 6. 3V 47U	1	
C6711	ECA0JM331	E. CAPACITOR 6. 3V 330U	1	
C6712	ECEA1HKA010	E. CAPACITOR 50V 1U	1	
C6713	ECUM1H150JCN	C. CAPACITOR CH 50V 15P	1	
C6714	ECEA1HKA010	E. CAPACITOR 50V 1U	1	
C6715	ECUM1H150JCN	C. CAPACITOR CH 50V 15P	1	
C6716	ECEA0JKS470	E. CAPACITOR 6. 3V 47U	1	
C6717	ECEA1CKA100	E. CAPACITOR 16V 10U	1	
C6718	ECA0JM331	E. CAPACITOR 6. 3V 330U	1	
C6719, 20	ECUM1H104ZFN	C. CAPACITOR CH 50V 0. 1U	2	
C6721	ECEA1CKA100	E. CAPACITOR 16V 10U	1	
C6722	ECA0JM331	E. CAPACITOR 6. 3V 330U	1	
C6723	ECUM1H104ZFN	C. CAPACITOR CH 50V 0. 1U	1	
C6724	ECUM1H103ZFN	C. CAPACITOR CH 50V 0. 01U	1	
C6725	ECUM1H150JCN	C. CAPACITOR CH 50V 15P	1	
C6726	ECUM1H102JCN	C. CAPACITOR CH 50V 1000P	1	
C6727	ECUM1H150JCN	C. CAPACITOR CH 50V 15P	1	
C6728, 29	ECUM1H103ZFN	C. CAPACITOR CH 50V 0. 01U	2	
C6730	ECUM1H221JCN	C. CAPACITOR CH 50V 220P	1	
C6731	ECUM1H104ZFN	C. CAPACITOR CH 50V 0. 1U	1	
C6732	ECEA1HKA010	E. CAPACITOR 50V 1U	1	
C6735, 36	ECUM1H104ZFN	C. CAPACITOR CH 50V 0. 1U	2	
C6737	ECEA1HKA2R2	E. CAPACITOR 50V 2. 2U	1	
C6738	ECUM1H330JCN	C. CAPACITOR CH 50V 33P	1	
C6739, 40	ECUM1H104ZFN	C. CAPACITOR CH 50V 0. 1U	2	
C6741, 42	ECEA1HKA010	E. CAPACITOR 50V 1U	2	
C6743	ECUM1H330JCN	C. CAPACITOR CH 50V 33P	1	
C6745	ECEA0JKA470	E. CAPACITOR 6. 3V 47U	1	
C6748	ECUM1H150JCN	C. CAPACITOR CH 50V 15P	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
C6749	ECEA0JKS470	E. CAPACITOR 6. 3V 47U	1	
C6750	ECUM1H104ZFN	C. CAPACITOR CH 50V 0. 1U	1	
C6752, 53	ECUM1H221JCN	C. CAPACITOR CH 50V 220P	2	
C6754	ECEA1HKS2R2	E. CAPACITOR 50V 2. 2U	1	
C6755	ECUM1H102KBN	C. CAPACITOR CH 50V 1000P	1	
C6756, 57	ECUM1H104ZFN	C. CAPACITOR CH 50V 0. 1U	2	
C6758	ECUM1H103ZFN	C. CAPACITOR CH 50V 0. 01U	1	
C6759	ECUM1H101JCN	C. CAPACITOR CH 50V 100P	1	
C6760	ECUM1H271JCN	C. CAPACITOR CH 50V 270P	1	
C6761	ECUM1H180JCN	C. CAPACITOR CH 50V 18P	1	
C6763	ECUM1H101JCN	C. CAPACITOR CH 50V 100P	1	
C6764, 65	ECUM1H104ZFN	C. CAPACITOR CH 50V 0. 1U	2	
C6766	ECEA1HKA010	E. CAPACITOR 50V 1U	1	
C6770	ECUM1H391JCN	C. CAPACITOR CH 50V 390P	1	
C7302	ECEA1HKN2R2	E. CAPACITOR 50V 2. 2U	1	
C7304	ECEA1HKN2R2	E. CAPACITOR 50V 2. 2U	1	
C7308	ECUM1H181JCN	C. CAPACITOR CH 50V 180P	1	
C7309	ECUM1H152KBN	C. CAPACITOR CH 50V 1500P	1	
C7310	ECEA1CKA100	E. CAPACITOR 16V 10U	1	
C7311	ECEA1CKA101	E. CAPACITOR 16V 100U	1	
C7312	ECQB1H103JZ	P. CAPACITOR 50V 0. 01U	1	
C7313	ECQV1H104JM	P. CAPACITOR 50V 0. 1U	1	
C7314, 15	ECQB1H103JZ	P. CAPACITOR 50V 0. 01U	2	
C7320, 21	ECEA1CKA100	E. CAPACITOR 16V 10U	2	
C7323, 24	ECUM1H153KBM	C. CAPACITOR CH 50V 0. 015U	2	
C7325	ECUX1H223KBM	C. CAPACITOR CH 50V 0. 022U	1	
C7326	ECEA1CKN100	E. CAPACITOR 16V 10U	1	
C7328	ECEA1CKA470	E. CAPACITOR 16V 47U	1	
C7330	ECEA1CKA100	E. CAPACITOR 16V 10U	1	
C7332, 33	ECUX1H102KBV	C. CAPACITOR CH 50V 1000P	2	
C7337	ECUX1H103ZFV	C. CAPACITOR CH 50V 0. 01U	1	
C7339	ECUX1H103ZFV	C. CAPACITOR CH 50V 0. 01U	1	
C7340	ECUM1H390JPN	C. CAPACITOR CH 50V 39P	1	
C7341	ECUX1H070DCV	C. CAPACITOR CH 50V 7P	1	
C7345	ECUX1H103ZFV	C. CAPACITOR CH 50V 0. 01U	1	
C7346	ECUM1H390JPN	C. CAPACITOR CH 50V 39P	1	
C7347	ECUX1H070DCV	C. CAPACITOR CH 50V 7P	1	
C7349, 50	ECUX1H221JCV	C. CAPACITOR CH 50V 220P	2	
C7352	ECUX1H103ZFV	C. CAPACITOR CH 50V 0. 01U	1	
C7353	ECEA1CKA470	E. CAPACITOR 16V 47U	1	
C7601	ECUM1H103ZFN	C. CAPACITOR CH 50V 0. 01U	1	
C7604	ECEA0JKA101	E. CAPACITOR 6. 3V 100U	1	
C7605	ECUM1H104ZFN	C. CAPACITOR CH 50V 0. 1U	1	
C7606	ECEA1CKA101	E. CAPACITOR 16V 100U	1	
C7607	ECUM1H103ZFN	C. CAPACITOR CH 50V 0. 01U	1	
C7608, 09	ECEA0JKA101	E. CAPACITOR 6. 3V 100U	2	
C7610	ECUM1H104ZFN	C. CAPACITOR CH 50V 0. 1U	1	
C7611	ECUM1H103ZFN	C. CAPACITOR CH 50V 0. 01U	1	
C7614	ECEA1HKA100	E. CAPACITOR 50V 10U	1	
C7615	ECEA1HKA010	E. CAPACITOR 50V 1U	1	
C7617	ECUM1H150JCN	C. CAPACITOR CH 50V 15P	1	
D1001	MA4110H	DIODE	1	
D1002, 03	1SS254	DIODE	2	
D1004	MA4051-M	DIODE	1	
D1005	1SS254	DIODE	1	
D1006	MA4051-M	DIODE	1	
D1007	1SS254	DIODE	1	
D1009, 10	1SS254	DIODE	2	
D2005-08	1SS355	DIODE	4	
D2009-13	1SS254	DIODE	5	
D2501	11ES1	DIODE	1	
D2502	MA157	DIODE	1	
D2503, 04	1SS254	DIODE	2	
D3002	MA151WK	DIODE	1	
D3005, 06	1SS254	DIODE	2	
D3012-14	1SS254	DIODE	3	
D4001	MA4056-M	DIODE	1	
D4002-04	1SS254	DIODE	3	
D4005	MA4075	DIODE	1	
D4006, 07	1SS254	DIODE	2	
D4013	1SS254	DIODE	1	
D4504	1SS254	DIODE	1	
D6001	LN59LT. VT	LED	1	
D6002	MA4075-L	DIODE	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
D6003	1SS254	DIODE	1	
D6701, 02	1SS254	DIODE	2	
D6704	MA723-VT	DIODE	1	
D6705, 06	1SS254	DIODE	2	
D7304	MA29T-B	DIODE	1	
D7305	1SS254	DIODE	1	
D7307	MA151K	DIODE	1	
D7601	MA4300-M	DIODE	1	
D7602	1SS254	DIODE	1	
D7604	1SS254	DIODE	1	
FL7601	ELB4H020	FILTER	1	
IC0701	LA7576	IC	1	
IC1002	HA17431PA	IC	1	
IC2002	AN3814K	IC	1	
IC2501	BA6871BS	IC	1	
IC3002	MC14053BF	IC	1	
IC4001	BA7795FS	IC	1	
IC4002	MC14053BF	IC	1	
IC4003	NJM4565DD	IC	1	
IC4004	NJM4558M	IC	1	
IC4501	BH7778AK	IC	1	
IC4502	BU4052BCF	IC	1	
IC4503	BA7735FS	IC	1	
IC4681	BA4558F	IC	1	
IC6001	MN675536VR9W	IC	1	
IC6002	BA6887-V3	IC	1	
IC6003, 04	ON1387	PHOTO INTERRUPTER	2	
IC6701	BH7236AF	IC	1	
IC6702	ST24W16FB6	IC	1	
IC6703	S80743AL	IC	1	
IC6704	SAA5281ZPM3	IC	1	
IC6705	TC7W74F	IC	1	
IC6706	SABC513AL16P	IC	1	
IC6707	NJM2513M	IC	1	
IC6708	T74HC573AF	IC	1	
IC6709	AN3581S	IC	1	
IC6710	M27C1001FAAA	IC	1	
IC7301	TDA9845	IC	1	
IC7302	TA8721SN	IC	1	
K0702	ERJ3GEY0R00	M. RESISTOR CH 1/16W 0	1	
K0704, 05	ERJ3GEY0R00	M. RESISTOR CH 1/16W 0	2	
K2001, 02	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	2	
K4665	ERJ3GEY0R00	M. RESISTOR CH 1/16W 0	1	
K7302	ERJ3GEY0R00	M. RESISTOR CH 1/16W 0	1	
K7315	ERJ3GEYG302	M. RESISTOR CH 1/16W 3K	1	
K7316	ERJ6GEY0R00	M. RESISTOR CH 1/10W 0	1	
K7601	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	1	
K7605	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	1	
L0701	VLQ0163JR18	COIL 0. 18UH	1	
L0705	VLQ0163J5R6	COIL 5. 6UH	1	
L0706	VLQEL05S150K	COIL 15UH	1	
L2002	VLQ0599J101	COIL 100UH	1	
L2501	ELESE102KA	COIL 1000UH	1	
L3001	VLQ0599J680	COIL 68UH	1	
L4001, 02	VLQ0599J680	COIL 68UH	2	
L4003, 04	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	2	
L4005, 06	VLQ0599J680	COIL 68UH	2	
L4007	VLQ0123	COIL	1	
L6002-04	VLQ0599J680	COIL 68UH	3	
L6702	VLQ0599J680	COIL 68UH	1	
L6703	VLQ0599J3R3	COIL 3. 3UH	1	
L6704	VLQ0599J330	COIL 33UH	1	
L6705	VLQ0599J270	COIL 27UH	1	
L6709	VLQ0599J680	COIL 68UH	1	
L6710	VLQ0599J390	COIL 39UH	1	
L6715	VLQ0599J820	COIL 82UH	1	
L6716	VLQ0599J220	COIL 22UH	1	
L7603, 04	VLQ0599J680	COIL 68UH	2	
L7607	VLQ0599J680	COIL 68UH	1	
L7608	VLQ0163J2R2	COIL 2. 2UH	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
LB3001	VLP0085	COIL	1	
LB4001	VLP0083	COIL	1	
LB6001	VLP0074	COIL	1	
LB6002-08	VLP0145	COIL	7	
LB6701, 02	VLP0145	COIL	2	
LB6703-06	VLP0083	COIL	4	
LB6709-14	VLP0145	COIL	6	
LB7601	VLP0099	COIL	1	
LB7602	VLP0083	COIL	1	
P1001	VJS3631A011A	CONNECTOR (FEMALE) 11P	1	
P2004	VJP1236T	CONNECTOR (MALE) 9P	1	
P2501	VJS3537A015G	CONNECTOR (FEMALE) 15P	1	
P2502	VJP3483	CONNECTOR (MALE) 3P	1	
P3001	VJS3537A020G	CONNECTOR (FEMALE) 20P	1	
P3002	VJS3673B025G	CONNECTOR (FEMALE) 25P	1	
P3003	VJS3673B023G	CONNECTOR (FEMALE) 23P	1	
P3004	VJS3537A011G	CONNECTOR (FEMALE) 11P	1	
P3005	VJP1231T	CONNECTOR (MALE) 4P	1	
P4001	VJS3675A006G	CONNECTOR (FEMALE) 6P	1	
P4002	VJP1230T	CONNECTOR (MALE) 3P	1	
P6001	VJS3821	CONNECTOR (FEMALE) 4P	1	
P6002	VJS3640A002	CONNECTOR (FEMALE) 2P	1	
PK0701	VJR0816E010W	CONNECTOR (MALE) 10P	1	
PK4501	VJR0777B008W	CONNECTOR (MALE) 8P	1	
PK4502	VJR0777B013W	CONNECTOR (MALE) 13P	1	
PK4503	VJR0777B010W	CONNECTOR (MALE) 10P	1	
PK7301	VJR0777B007W	CONNECTOR (MALE) 7P	1	
PK7302	VJR0777B005W	CONNECTOR (MALE) 5P	1	
PP0701	VJP3589A004B	CONNECTOR (MALE) 4P	1	
PP3001, 02	VJP3186A018W	CONNECTOR (MAIL) 18P	2	
PP3003	VJP3042G007W	CONNECTOR (MALE) 7P	1	
PP4001	VJP3042G016W	CONNECTOR (MALE) 16P	1	
PP4002	VJP3042G013W	CONNECTOR (MALE) 13P	1	
PP4003, 04	VJP3042G020W	CONNECTOR (MAIL) 20P	2	
Q0701	MSD601-S	TRANSISTOR	1	
Q0702	MSB709-R	TRANSISTOR	1	
Q1001	2SD25440PQA	TRANSISTOR	1	
Q1002, 03	2SD1996-S	TRANSISTOR	2	
Q1004	2SB1321A	TRANSISTOR	1	
Q1005	2SD1991A	TRANSISTOR	1	
Q1006	2SD602A-R	TRANSISTOR	1	
Q1007	2SD601A	TRANSISTOR	1	
Q1009	2SD1996-S	TRANSISTOR	1	
Q1010, 11	MSD1328	TRANSISTOR	2	
Q1015, 16	2SD1996-S	TRANSISTOR	2	
Q3001	2SD601A	TRANSISTOR	1	
Q3002	2SB709A	TRANSISTOR	1	
Q3003	2SD601A	TRANSISTOR	1	
Q3011	MSD602	TRANSISTOR	1	
Q3012	MSB710	TRANSISTOR	1	
Q3013	MSD602	TRANSISTOR	1	
Q3014	MSB710	TRANSISTOR	1	
Q3015	2SD601A	TRANSISTOR	1	
Q4001	2SB710A	TRANSISTOR	1	
Q4002, 03	2SD601A	TRANSISTOR	2	
Q4006	2SB710A	TRANSISTOR	1	
Q4007	2SD601A-R	TRANSISTOR	1	
Q4008, 09	2SD601A	TRANSISTOR	2	
Q4501	2SD1468	TRANSISTOR	1	
Q4551	2SA1515	TRANSISTOR	1	
Q6001	2SB709A	TRANSISTOR	1	
Q6002, 03	PN205LT-NCVT	PHOTO TRANSISTOR	2	
Q6701-05	2SD601A	TRANSISTOR	5	
Q6706	MSC2295	TRANSISTOR	1	
Q6707, 08	2SD601A	TRANSISTOR	2	
Q7301	MSD601-S	TRANSISTOR	1	
Q7601, 02	2SD601A	TRANSISTOR	2	
QR1001	MUN2111	TRANSISTOR-RESISTOR	1	
QR1002	MUN2213	TRANSISTOR-RESISTOR	1	
QR1003	MUN2211	TRANSISTOR-RESISTOR	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
QR2001	MUN2112	TRANSISTOR-RESISTOR	1	
QR2003	XN1213	TRANSISTOR-RESISTOR	1	
QR2004	MUN2213	TRANSISTOR-RESISTOR	1	
QR3001	MUN2211	TRANSISTOR-RESISTOR	1	
QR3002	MUN2213	TRANSISTOR-RESISTOR	1	
QR3003	MUN2212	TRANSISTOR-RESISTOR	1	
QR3004	MUN2211	TRANSISTOR-RESISTOR	1	
QR3006-08	MUN2212	TRANSISTOR-RESISTOR	3	
QR3009	MUN2111	TRANSISTOR-RESISTOR	1	
QR3011	MUN2212	TRANSISTOR-RESISTOR	1	
QR3015	MUN2212	TRANSISTOR-RESISTOR	1	
QR3016	MUN2211	TRANSISTOR-RESISTOR	1	
QR4001-04	MUN2212	TRANSISTOR-RESISTOR	4	
QR4651, 52	UN5213	TRANSISTOR-RESISTOR	2	
QR6001	XN1211	TRANSISTOR-RESISTOR	1	
QR6002	MUN2212	TRANSISTOR-RESISTOR	1	
QR6003	UN2116	TRANSISTOR-RESISTOR	1	
QR6004	MUN2211	TRANSISTOR-RESISTOR	1	
QR6701	MUN2211	TRANSISTOR-RESISTOR	1	
QR6702	UN2215	TRANSISTOR-RESISTOR	1	
QR6703, 04	MUN2211	TRANSISTOR-RESISTOR	2	
QR6705	MUN2213	TRANSISTOR-RESISTOR	1	
QR7304	MUN2213	TRANSISTOR-RESISTOR	1	
QR7601	MUN2213	TRANSISTOR-RESISTOR	1	
R0704	ERJ3GEYJ222	M. RESISTOR CH 1/16W 2. 2K	1	
R0705	ERJ3GEYJ562	M. RESISTOR CH 1/16W 5. 6K	1	
R0706, 07	ERJ3GEYJ272	M. RESISTOR CH 1/16W 2. 7K	2	
R0708	ERJ3GEYG152	M. RESISTOR CH 1/16W 1. 5K	1	
R0709	ERJ3GEYJ105	M. RESISTOR CH 1/16W 1M	1	
R0710	ERJ6GEYG154	M. RESISTOR CH 1/10W 150K	1	
R0713	ERJ3GEYJ391	M. RESISTOR CH 1/16W 390	1	
R0714	ERJ3GEYJ470	M. RESISTOR CH 1/16W 47	1	
R0715	ERJ3GEYJ183	M. RESISTOR CH 1/16W 18K	1	
R0716	VRE0040E151	M. RESISTOR CH 1/10W 150	1	
R0717	ERJ3GEYJ330	M. RESISTOR CH 1/16W 33	1	
R0718	ERJ3GEYG102	M. RESISTOR CH 1/16W 1K	1	
R0719	ERJ6GEYF822	M. RESISTOR CH 1/10W 8. 2K	1	
R0720	ERJ3GEYG102	M. RESISTOR CH 1/16W 1K	1	
R0722	ERJ3GEYJ101	M. RESISTOR CH 1/16W 100	1	
R0728	ERJ3GEYG471	M. RESISTOR CH 1/16W 470	1	
R0729	ERJ3GEYG102	M. RESISTOR CH 1/16W 1K	1	
R0732	ERJ3GEYG471	M. RESISTOR CH 1/16W 470	1	
R0783	ERJ3GEYJ393	M. RESISTOR CH 1/16W 39K	1	
R1001	ERDS1TJ272	C. RESISTOR 1/2W 2. 7K	1	
R1002	ERJ6GMYG102	M. RESISTOR CH 1/10W 1K	1	
R1003	ERJ6GMYG472	M. RESISTOR CH 1/10W 4. 7K	1	
R1004, 05	ERJ6GMYG103	M. RESISTOR CH 1/10W 10K	2	
R1006	ERJ6GMYG473	M. RESISTOR CH 1/10W 47K	1	
R1007	ERJ6GMYG562	M. RESISTOR CH 1/10W 5. 6K	1	
R1008	ERJ6GMYG333	M. RESISTOR CH 1/10W 33K	1	
R1009	ERJ6GMYG562	M. RESISTOR CH 1/10W 5. 6K	1	
R1010	ERJ6GMYG333	M. RESISTOR CH 1/10W 33K	1	
R1012	ERJ6GMYG393	M. RESISTOR CH 1/10W 39K	1	
R1014	ERJ6GMYG272	M. RESISTOR CH 1/10W 2. 7K	1	
R1015	ERJ6GMYG103	M. RESISTOR CH 1/10W 10K	1	
R1016	ERDS2TJ122	C. RESISTOR 1/4W 1. 2K	1	
R1020	ERDS2TJ271	C. RESISTOR 1/4W 270	1	
R1021	ERJ6GMYG272	M. RESISTOR CH 1/10W 2. 7K	1	
R2022	ERJ6GMYG103	M. RESISTOR CH 1/10W 10K	1	
R2024	ERDS2FJ1R5	C. RESISTOR 1/4W 1. 5	1	
R2027	ERDS2FJ1R2	C. RESISTOR 1/4W 1. 2	1	
R2028, 29	ERJ6GMYJ223	M. RESISTOR CH 1/10W 22K	2	
R2030, 31	ERJ6GMYG103	M. RESISTOR CH 1/10W 10K	2	
R2032	ERJ6GMYG562	M. RESISTOR CH 1/10W 5. 6K	1	
R2033, 34	ERJ6GMYG103	M. RESISTOR CH 1/10W 10K	2	
R2035	ERJ6GMYG222	M. RESISTOR CH 1/10W 2. 2K	1	
R2036, 37	ERJ6GMYG102	M. RESISTOR CH 1/10W 1K	2	
R2038	ERJ6GMYG392	M. RESISTOR CH 1/10W 3. 9K	1	
R2039	ERJ6GMYJ223	M. RESISTOR CH 1/10W 22K	1	
R2040	ERJ6GMYG103	M. RESISTOR CH 1/10W 10K	1	
R2041	ERJ6GMYG471	M. RESISTOR CH 1/10W 470	1	
R2042	ERJ6GMYG103	M. RESISTOR CH 1/10W 10K	1	
R2043	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	1	
R2044	ERJ6GMYJ221	M. RESISTOR CH 1/10W 220	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
R2045	ERJ6GMYG272	M.RESISTOR CH 1/10W 2.7K	1	
R2046	ERJ6GMYG332	M.RESISTOR CH 1/10W 3.3K	1	
R2047	ERJ6GMYJ223	M.RESISTOR CH 1/10W 22K	1	
R2048	ERJ6GMYG222	M.RESISTOR CH 1/10W 2.2K	1	
R2501	ERX12SJR47	M.RESISTOR 1/2W 0.47	1	
R2502	ERDS2TJ560	C.RESISTOR 1/4W 56	1	
R2503,04	ERJ6GMYG392	M.RESISTOR CH 1/10W 3.9K	2	
R2505,06	ERJ6GMYJ105	M.RESISTOR CH 1/10W 1M	2	
R2509	ERJ6GMYG102	M.RESISTOR CH 1/10W 1K	1	
R2510	ERJ6GMYJ105	M.RESISTOR CH 1/10W 1M	1	
R2511	ERJ6GMYG133	M.RESISTOR CH 1/10W 13K	1	
R2512	ERJ6GMYG821	M.RESISTOR CH 1/10W 820	1	
R2513	ERJ6GMYG681	M.RESISTOR CH 1/10W 680	1	
R2514,15	ERDS2TJ560	C.RESISTOR 1/4W 56	2	
R2516	ERDS1TJ561	C.RESISTOR 1/2W 560	1	
R2517	ERJ6GMYG222	M.RESISTOR CH 1/10W 2.2K	1	
R2518	ERJ6GMYG432	M.RESISTOR CH 1/10W 4.3K	1	
R2519	ERJ6GMYG473	M.RESISTOR CH 1/10W 47K	1	
R2520	ERJ6GMYJ684	M.RESISTOR CH 1/10W 680K	1	
R2521	ERJ6GMYG103	M.RESISTOR CH 1/10W 10K	1	
R3001	ERJ6GMYG153	M.RESISTOR CH 1/10W 15K	1	
R3002	ERJ6GMYG821	M.RESISTOR CH 1/10W 820	1	
R3003	ERJ6GMYG103	M.RESISTOR CH 1/10W 10K	1	
R3004,05	ERJ6GMYG102	M.RESISTOR CH 1/10W 1K	2	
R3006	ERJ6GMYG222	M.RESISTOR CH 1/10W 2.2K	1	
R3007	ERJ6GMYG103	M.RESISTOR CH 1/10W 10K	1	
R3010	ERJ6GMYG392	M.RESISTOR CH 1/10W 3.9K	1	
R3011	ERJ6GMYG102	M.RESISTOR CH 1/10W 1K	1	
R3012	ERJ6GMYG152	M.RESISTOR CH 1/10W 1.5K	1	
R3013	ERJ6GMYG203	M.RESISTOR CH 1/10W 20K	1	
R3014	ERJ6GMYG183	M.RESISTOR CH 1/10W 18K	1	
R3015	ERJ6GMYG102	M.RESISTOR CH 1/10W 1K	1	
R3016	ERJ6GMYG103	M.RESISTOR CH 1/10W 10K	1	
R3017	ERJ6GMYG102	M.RESISTOR CH 1/10W 1K	1	
R3018	ERJ6GMYG332	M.RESISTOR CH 1/10W 3.3K	1	
R3019	ERJ6GMYG103	M.RESISTOR CH 1/10W 10K	1	
R3020	ERJ6GMYG302	M.RESISTOR CH 1/10W 3K	1	
R3021	ERJ6GMYG272	M.RESISTOR CH 1/10W 2.7K	1	
R3022	ERJ6GMYG512	M.RESISTOR CH 1/10W 5.1K	1	
R3023	ERJ6GMYG123	M.RESISTOR CH 1/10W 12K	1	
R3024	ERJ6GMYG103	M.RESISTOR CH 1/10W 10K	1	
R3025,26	ERJ6GMYG102	M.RESISTOR CH 1/10W 1K	2	
R3027	ERJ6GMYG103	M.RESISTOR CH 1/10W 10K	1	
R3028	ERJ6GMYJ683	M.RESISTOR CH 1/10W 68K	1	
R4001	ERJ6GMYG100	M.RESISTOR CH 1/10W 10	1	
R4002	ERJ6GMYG332	M.RESISTOR CH 1/10W 3.3K	1	
R4003	ERDS2TJ680	C.RESISTOR 1/4W 68	1	
R4004,05	ERJ6GMYG103	M.RESISTOR CH 1/10W 10K	2	
R4006	ERDS2TJ680	C.RESISTOR 1/4W 68	1	
R4007	ERJ6GMYG222	M.RESISTOR CH 1/10W 2.2K	1	
R4008	ERJ6GMYG103	M.RESISTOR CH 1/10W 10K	1	
R4009	ERJ6GMYG332	M.RESISTOR CH 1/10W 3.3K	1	
R4010	ERJ6GMYG222	M.RESISTOR CH 1/10W 2.2K	1	
R4011	ERJ6GMYG123	M.RESISTOR CH 1/10W 12K	1	
R4012	ERJ6GMYG222	M.RESISTOR CH 1/10W 2.2K	1	
R4013	ERJ6GMYJ163	M.RESISTOR CH 1/10W 16K	1	
R4014	ERJ6GMYG332	M.RESISTOR CH 1/10W 3.3K	1	
R4015	ERJ6GMYG333	M.RESISTOR CH 1/10W 33K	1	
R4016	ERJ6GMYJ223	M.RESISTOR CH 1/10W 22K	1	
R4017	ERJ6GMYG133	M.RESISTOR CH 1/10W 1.3K	1	
R4018	ERJ6GMYG103	M.RESISTOR CH 1/10W 10K	1	
R4019	ERJ6GMYJ105	M.RESISTOR CH 1/10W 1M	1	
R4020	ERJ6GMYG123	M.RESISTOR CH 1/10W 12K	1	
R4021	ERJ6GMYG393	M.RESISTOR CH 1/10W 39K	1	
R4022	ERJ6GMYG391	M.RESISTOR CH 1/10W 390	1	
R4023	ERJ6GMYG394	M.RESISTOR CH 1/10W 390K	1	
R4024	ERDS2TJ221	C.RESISTOR 1/4W 220	1	
R4025	ERJ6GMYG682	M.RESISTOR CH 1/10W 6.8K	1	
R4026	ERJ6GMYG473	M.RESISTOR CH 1/10W 47K	1	
R4027,28	ERJ6GMYG103	M.RESISTOR CH 1/10W 10K	2	
R4029	ERJ6GMYG912	M.RESISTOR CH 1/10W 9.1K	1	
R4030	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	1	
R4031	ERJ6GMYG202	M.RESISTOR CH 1/10W 2K	1	
R4032	ERJ6GMYG331	M.RESISTOR CH 1/10W 330	1	
R4033	ERJ6GMYG152	M.RESISTOR CH 1/10W 1.5K	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
R4034	ERJ6GMYG183	M.RESISTOR CH 1/10W 18K	1	
R4035,36	ERJ6GMYJ223	M.RESISTOR CH 1/10W 22K	2	
R4037	ERJ6GMYG103	M.RESISTOR CH 1/10W 10K	1	
R4038	ERJ6GMYG332	M.RESISTOR CH 1/10W 3.3K	1	
R4039,40	ERJ6GMYG102	M.RESISTOR CH 1/10W 1K	2	
R4041-45	ERJ6GMYG473	M.RESISTOR CH 1/10W 47K	5	
R4046	ERJ6GMYJ223	M.RESISTOR CH 1/10W 22K	1	
R4047	ERJ6GMYJ683	M.RESISTOR CH 1/10W 68K	1	
R4048	ERJ6GMYG473	M.RESISTOR CH 1/10W 47K	1	
R4049	ERJ6GMYG682	M.RESISTOR CH 1/10W 6.8K	1	
R4050	ERJ6GMYJ221	M.RESISTOR CH 1/10W 220	1	
R4051	ERJ6GMYG682	M.RESISTOR CH 1/10W 6.8K	1	
R4052	ERJ6GMYJ683	M.RESISTOR CH 1/10W 68K	1	
R4053	ERJ6GMYJ223	M.RESISTOR CH 1/10W 22K	1	
R4054,55	ERDS2TJ472	C.RESISTOR 1/4W 4.7K	2	
R4056	ERG1SJ122	M.RESISTOR 1W 1.2K	1	
R4057	ERJ6GMYG332	M.RESISTOR CH 1/10W 3.3K	1	
R4058	ERJ6GMYG472	M.RESISTOR CH 1/10W 4.7K	1	
R4059	ERJ6GMYG393	M.RESISTOR CH 1/10W 39K	1	
R4060	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	1	
R4061	ERJ6GMYG153	M.RESISTOR CH 1/10W 15K	1	
R4062	ERJ6GMYG272	M.RESISTOR CH 1/10W 2.7K	1	
R4063	ERG2SJ821	M.RESISTOR 2W 820	1	
R4064	ERJ6GMYJ221	M.RESISTOR CH 1/10W 220	1	
R4065,66	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	2	
R4067	ERJ6GMYG104	M.RESISTOR CH 1/10W 100K	1	
R4068	ERJ6GMYG152	M.RESISTOR CH 1/10W 1.5K	1	
R4069	ERJ6GMYG104	M.RESISTOR CH 1/10W 100K	1	
R4070	ERJ6GMYG152	M.RESISTOR CH 1/10W 1.5K	1	
R4071	ERJ6GMYG392	M.RESISTOR CH 1/10W 3.9K	1	
R4072	ERJ6GMYG103	M.RESISTOR CH 1/10W 10K	1	
R4073,74	ERJ6GMYG392	M.RESISTOR CH 1/10W 3.9K	2	
R4075	ERJ6GMYG473	M.RESISTOR CH 1/10W 47K	1	
R4076	ERJ6GMYG562	M.RESISTOR CH 1/10W 5.6K	1	
R4503	ERJ3RBD203	M.RESISTOR CH 1/16W 20K	1	
R4504	ERJ3GEYG224	M.RESISTOR CH 1/16W 220K	1	
R4508	ERJ3GEYG224	M.RESISTOR CH 1/16W 220K	1	
R4512	ERJ3RBD123	M.RESISTOR CH 1/16W 12K	1	
R4513	ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	1	
R4517,18	ERJ3GEYJ221	M.RESISTOR CH 1/16W 220	2	
R4519,20	ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	2	
R4522	ERJ3GEYK225	M.RESISTOR CH 1/16W 2.2M	1	
R4528	ERJ3RBD153	M.RESISTOR CH 1/16W 15K	1	
R4529	ERJ3GEYG562	M.RESISTOR CH 1/16W 5.6K	1	
R4530	ERJ3GEYJ334	M.RESISTOR CH 1/16W 330K	1	
R4534	ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	1	
R4542	ERJ3GEYJ222	M.RESISTOR CH 1/16W 2.2K	1	
R4562	ERJ3RBD912	M.RESISTOR CH 1/16W 9.1K	1	
R4563	ERJ3GEYJ272	M.RESISTOR CH 1/16W 2.7K	1	
R4584	ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	1	
R4585	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R4586	ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	1	
R4598	ERJ6RED124	M.RESISTOR CH 1/10W 120K	1	
R4599	ERJ6RED114	M.RESISTOR CH 1/10W 110K	1	
R4601	ERJ3GEYJ473	M.RESISTOR CH 1/16W 47K	1	
R4603,04	ERJ3GEYJ473	M.RESISTOR CH 1/16W 47K	2	
R4605	ERJ6GEYF473	M.RESISTOR CH 1/10W 47K	1	
R4606,07	ERJ3GEYJ473	M.RESISTOR CH 1/16W 47K	2	
R4608	ERDS2TJ103	C.RESISTOR 1/4W 10K	1	
R4621	ERJ6GEYG562	M.RESISTOR CH 1/10W 5.6K	1	
R4623	ERJ3GEYJ221	M.RESISTOR CH 1/16W 220	1	
R4624	ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	1	
R4690	ERJ6GEYG104	M.RESISTOR CH 1/10W 100K	1	
R4695,96	ERJ3GEYJ473	M.RESISTOR CH 1/16W 47K	2	
R4697	ERJ6GEYG562	M.RESISTOR CH 1/10W 5.6K	1	
R4700	ERJ3GEYJ752	M.RESISTOR CH 1/16W 7.5K	1	
R4701	ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	1	
R4702	ERJ3GEYJ752	M.RESISTOR CH 1/16W 7.5K	1	
R4703	ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	1	
R6001	ERJ6GMYG223	M.RESISTOR CH 1/10W 22K	1	
R6002	ERJ6GMYG333	M.RESISTOR CH 1/10W 33K	1	
R6003	ERJ6GMYG272	M.RESISTOR CH 1/10W 2.7K	1	
R6004,05	ERJ6GMYG333	M.RESISTOR CH 1/10W 33K	2	
R6006	ERJ6GMYG223	M.RESISTOR CH 1/10W 22K	1	
R6007	ERJ6GMYG272	M.RESISTOR CH 1/10W 2.7K	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
R6008	ERJ6GMYG201	M. RESISTOR CH 1/10W 200	1	
R6009, 10	ERJ6GMYG102	M. RESISTOR CH 1/10W 1K	2	
R6011	ERDS2TJ102	C. RESISTOR 1/4W 1K	1	
R6012	ERX1SJ1R8	M. RESISTOR 1W 1. 8	1	
R6013	ERJ6GMYG512	M. RESISTOR CH 1/10W 5. 1K	1	
R6014	ERJ6GMYG913	M. RESISTOR CH 1/10W 91K	1	
R6015	ERJ6GMYG272	M. RESISTOR CH 1/10W 2. 7K	1	
R6016	ERJ6GMYG102	M. RESISTOR CH 1/10W 1K	1	
R6017, 18	ERJ6GMYG103	M. RESISTOR CH 1/10W 10K	2	
R6019	ERJ6GMYG472	M. RESISTOR CH 1/10W 4. 7K	1	
R6020	ERJ6GMYG103	M. RESISTOR CH 1/10W 10K	1	
R6021	ERJ6GEYG103	M. RESISTOR CH 1/10W 10K	1	
R6022, 23	ERJ6GMZOR00	M. RESISTOR CH 1/10W 0	2	
R6024	ERJ6GMYG102	M. RESISTOR CH 1/10W 1K	1	
R6025	ERJ6GMZOR00	M. RESISTOR CH 1/10W 0	1	
R6026	ERJ6GMYG101	M. RESISTOR CH 1/10W 100	1	
R6027-31	ERJ6GMYG102	M. RESISTOR CH 1/10W 1K	5	
R6032	ERJ6GMYG104	M. RESISTOR CH 1/10W 100K	1	
R6033	ERJ6GMYG101	M. RESISTOR CH 1/10W 100	1	
R6034	ERJ6GMYG222	M. RESISTOR CH 1/10W 2. 2K	1	
R6035	ERJ6GMZOR00	M. RESISTOR CH 1/10W 0	1	
R6036, 37	ERJ6GMYG272	M. RESISTOR CH 1/10W 2. 7K	2	
R6038, 39	ERJ6GMYJ221	M. RESISTOR CH 1/10W 220	2	
R6040	ERJ6GMYG272	M. RESISTOR CH 1/10W 2. 7K	1	
R6041	ERJ6GMYG102	M. RESISTOR CH 1/10W 1K	1	
R6042, 43	ERJ6GMYJ221	M. RESISTOR CH 1/10W 220	2	
R6044, 45	ERJ6GMYJ683	M. RESISTOR CH 1/10W 68K	2	
R6046	ERDS2TJ271	C. RESISTOR 1/4W 270	1	
R6047	ERJ6GMYG103	M. RESISTOR CH 1/10W 10K	1	
R6050	ERJ6GMZOR00	M. RESISTOR CH 1/10W 0	1	
R6051	ERJ6GMYG103	M. RESISTOR CH 1/10W 10K	1	
R6052, 53	ERJ6GMYG102	M. RESISTOR CH 1/10W 1K	2	
R6054	ERJ6GMYG101	M. RESISTOR CH 1/10W 100	1	
R6056, 57	ERJ6GMYG473	M. RESISTOR CH 1/10W 47K	2	
R6059	ERJ6GMYG472	M. RESISTOR CH 1/10W 4. 7K	1	
R6061	ERJ6GMYG183	M. RESISTOR CH 1/10W 18K	1	
R6062-66	ERJ6GMZOR00	M. RESISTOR CH 1/10W 0	5	
R6701	ERJ6GMYG472	M. RESISTOR CH 1/10W 4. 7K	1	
R6702	ERJ6GMYG103	M. RESISTOR CH 1/10W 10K	1	
R6703	ERJ6GMYG102	M. RESISTOR CH 1/10W 1K	1	
R6704	ERJ6GMYG562	M. RESISTOR CH 1/10W 5. 6K	1	
R6705	ERJ6GMYG911	M. RESISTOR CH 1/10W 910	1	
R6706, 07	ERJ6GMYJ221	M. RESISTOR CH 1/10W 220	2	
R6708	ERJ6GMYJ621	M. RESISTOR CH 1/10W 620	1	
R6709	ERJ6GMYG471	M. RESISTOR CH 1/10W 470	1	
R6710	ERJ6GMYG102	M. RESISTOR CH 1/10W 1K	1	
R6711, 12	ERJ6GMYG472	M. RESISTOR CH 1/10W 4. 7K	2	
R6713	ERJ6GMYG273	M. RESISTOR CH 1/10W 27K	1	
R6714	ERJ6GMYJ474	M. RESISTOR CH 1/10W 470K	1	
R6715	ERJ6GMYG224	M. RESISTOR CH 1/10W 220K	1	
R6716	ERJ6GMYJ221	M. RESISTOR CH 1/10W 220	1	
R6717, 18	ERJ6GMYG102	M. RESISTOR CH 1/10W 1K	2	
R6719	ERJ6GMYG182	M. RESISTOR CH 1/10W 1. 8K	1	
R6723	ERJ6GMYG332	M. RESISTOR CH 1/10W 3. 3K	1	
R6724-26	ERJ6GMZOR00	M. RESISTOR CH 1/10W 0	3	
R6727	ERJ6GMYG473	M. RESISTOR CH 1/10W 47K	1	
R6728	ERJ6GMYG102	M. RESISTOR CH 1/10W 1K	1	
R6729	ERJ6GMYG473	M. RESISTOR CH 1/10W 47K	1	
R6730	ERJ6GMYK225	M. RESISTOR CH 1/10W 2. 2M	1	
R6731	ERJ6GMYG392	M. RESISTOR CH 1/10W 3. 9K	1	
R6732, 33	ERJ6GMYJ105	M. RESISTOR CH 1/10W 1M	2	
R6734	ERJ6GMYG104	M. RESISTOR CH 1/10W 100K	1	
R6735	ERJ6GMYG224	M. RESISTOR CH 1/10W 220K	1	
R6736	ERJ6GMYG104	M. RESISTOR CH 1/10W 100K	1	
R6737	ERJ6GMYG102	M. RESISTOR CH 1/10W 1K	1	
R6738	ERJ6GMYG101	M. RESISTOR CH 1/10W 100	1	
R6739	ERJ6GMYJ221	M. RESISTOR CH 1/10W 220	1	
R6740-47	ERJ6GEYG101	M. RESISTOR CH 1/10W 100	8	
R6748, 49	ERJ6GMZOR00	M. RESISTOR CH 1/10W 0	2	
R6750	ERJ6GMYJ223	M. RESISTOR CH 1/10W 22K	1	
R6751	ERJ6GMZOR00	M. RESISTOR CH 1/10W 0	1	
R6752	ERJ6GMYJ223	M. RESISTOR CH 1/10W 22K	1	
R6753	ERJ6GMYG562	M. RESISTOR CH 1/10W 5. 6K	1	
R6754	ERJ6GMYG153	M. RESISTOR CH 1/10W 15K	1	
R6755	ERJ6GMYJ105	M. RESISTOR CH 1/10W 1M	1	
R6756	ERJ6GMYG271	M. RESISTOR CH 1/10W 270	1	
R6757	ERJ6GMYG273	M. RESISTOR CH 1/10W 27K	1	
R6758	ERJ6GMYG182	M. RESISTOR CH 1/10W 1. 8K	1	
R6759	ERJ6GMYG472	M. RESISTOR CH 1/10W 4. 7K	1	
R6760	ERJ6GMYG103	M. RESISTOR CH 1/10W 10K	1	
R6761	ERJ6GMYG333	M. RESISTOR CH 1/10W 33K	1	
R6762	ERJ6GMZOR00	M. RESISTOR CH 1/10W 0	1	
R6763	ERJ6GMYG472	M. RESISTOR CH 1/10W 4. 7K	1	
R6765	ERJ6GMYG272	M. RESISTOR CH 1/10W 2. 7K	1	
R6766-68	ERJ6GMYG102	M. RESISTOR CH 1/10W 1K	3	
R6769	ERJ6GMYG822	M. RESISTOR CH 1/10W 8. 2K	1	
R6770	ERJ6GMYG104	M. RESISTOR CH 1/10W 100K	1	
R6771, 72	ERJ6GMYJ221	M. RESISTOR CH 1/10W 220	2	
R6773	ERJ6GMYG101	M. RESISTOR CH 1/10W 100	1	
R6774	ERJ6GMYG222	M. RESISTOR CH 1/10W 2. 2K	1	
R6775	ERJ6GMYG122	M. RESISTOR CH 1/10W 1. 2K	1	
R6776	ERJ6GMYG272	M. RESISTOR CH 1/10W 2. 7K	1	
R6778	ERJ6GMYG103	M. RESISTOR CH 1/10W 10K	1	
R7302	ERJ3GEYG133	M. RESISTOR CH 1/16W 13K	1	
R7303	ERJ3GEYG222	M. RESISTOR CH 1/16W 2. 2K	1	
R7304	ERJ3GEYG392	M. RESISTOR CH 1/16W 3. 9K	1	
R7305	ERJ3GEYG562	M. RESISTOR CH 1/16W 5. 6K	1	
R7307	ERJ3GEYG272	M. RESISTOR CH 1/16W 2. 7K	1	
R7311	ERJ3GEY0R00	M. RESISTOR CH 1/16W 0	1	
R7313	ERJ3GEYJ273	M. RESISTOR CH 1/16W 27K	1	
R7320	ERJ6GEYG103	M. RESISTOR CH 1/10W 10K	1	
R7323	ERJ3GEYG472	M. RESISTOR CH 1/16W 4. 7K	1	
R7324, 25	ERJ3GEYG471	M. RESISTOR CH 1/16W 470	2	
R7326	ERJ3GEYG113	M. RESISTOR CH 1/16W 11K	1	
R7327	ERJ6GEYG103	M. RESISTOR CH 1/10W 10K	1	
R7328	ERJ3GEY0R00	M. RESISTOR CH 1/16W 0	1	
R7329	ERJ3GEYG332	M. RESISTOR CH 1/16W 3. 3K	1	
R7330	ERJ3GEY0R00	M. RESISTOR CH 1/16W 0	1	
R7331	ERJ3GEYG113	M. RESISTOR CH 1/16W 11K	1	
R7336	ERJ6GEYJ471	M. RESISTOR CH 1/10W 470	1	
R7337	ERJ3GEYG471	M. RESISTOR CH 1/16W 470	1	
R7345	ERJ3GEYG182	M. RESISTOR CH 1/16W 1. 8K	1	
R7352, 53	ERJ3GEYJ103	M. RESISTOR CH 1/16W 10K	2	
R7354, 55	ERJ3GEYG102	M. RESISTOR CH 1/16W 1K	2	
R7358, 59	ERJ3GEY0R00	M. RESISTOR CH 1/16W 0	2	
R7362, 63	ERJ3GEYJ103	M. RESISTOR CH 1/16W 10K	2	
R7602, 03	ERJ6GMYJ683	M. RESISTOR CH 1/10W 68K	2	
R7605-07	ERJ6GMYG102	M. RESISTOR CH 1/10W 1K	3	
R7609	ERJ6GMYG102	M. RESISTOR CH 1/10W 1K	1	
R7610	ERJ6GMYG152	M. RESISTOR CH 1/10W 1. 5K	1	
R7611	ERJ6GMYG392	M. RESISTOR CH 1/10W 3. 9K	1	
R7612, 13	ERG2SJ331	M. RESISTOR 2W 330	2	
R7614	ERJ6GMYG561	M. RESISTOR CH 1/10W 560	1	
R7615	ERJ6GMYG103	M. RESISTOR CH 1/10W 10K	1	
R7616, 17	ERJ6GMYG151	M. RESISTOR CH 1/10W 150	2	
R7618	ERJ6GMYG103	M. RESISTOR CH 1/10W 10K	1	
R7619	ERJ6GMZOR00	M. RESISTOR CH 1/10W 0	1	
RX6701	EXBF9E103J	RESISTOR-RESISTOR	1	
S6001	VST0176	SWITCH	1	
S6002	VES0709	SWITCH	1	
T0703	EQV5EC071A	TRANSFORMER	1	
T0704	EQV5EC072A	TRANSFORMER	1	
T4001	EQQ7QF025P	TRANSFORMER	1	
T4002	EQQ7QF026P	TRANSFORMER	1	
T7301	EQR7QG028P	TRANSFORMER	1	
T7304	EIS5EC017A	TRANSFORMER	1	
T7305	EQS5EC033A	TRANSFORMER	1	
⚠ TU7601	ENG47259G1	TUNER	1	
VR0701	EVNCBAA00B24	V. RESISTOR 20K	1	
VR2001	EVNCYAA03B54	V. RESISTOR 50K	1	
VR4001	EVNCYAA03B54	V. RESISTOR 50K	1	
VR4501	EVMECSA00BS3	V. RESISTOR 6. 8K	1	
VR4509	EVMECSA00B53	V. RESISTOR 5K	1	
VR4550	EVMECSA00B14	V. RESISTOR 10K	1	
VR7301	EVNCBAA00B53	V. RESISTOR 5K	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
X0701	VLF1178	FILTER	1	
X0703	EFCS5R5MW5	FILTER	1	
X0704	VLF1368	FILTER	1	
X6001	VSX0583	CRYSTAL OSCILLATOR	1	
X6701	VSX0875	CRYSTAL OSCILLATOR	1	
X6702	VSX0873	CRYSTAL OSCILLATOR	1	
X6703	VSX0066	CRYSTAL OSCILLATOR	1	
X7301	EFCS5R5MS5	FILTER	1	
X7304	EFCS5R74MS5B	FILTER	1	
X7305	VSX0648	CRYSTAL OSCILLATOR	1	
ZA3001	VMC1217	EARTH SPRING ANGLE	1	
ZB6001,02	VMD2329	PHOTO TRANSISTOR HOLDER	2	
ZB6003	VMD2328	REEL GUIDE	1	
ZB6004	VMD2330	LED HOLDER	1	
		MISCELLANEOUS		
	VMP4894	SUPPORT ANGLE	1	FOR DECODER C.B.A.
	VMP4471	TV DEMODULATOR ANGLE	1	FOR TV DEMODU. C.B.A.
■	VEP03D77A	INPUT/OUTPUT C.B.A.		(RTL)
C3903	ECEA0JKA470	E.CAPACITOR 6.3V 47U	1	
C3906	ECEA0JKA470	E.CAPACITOR 6.3V 47U	1	
C3907	ECEA1CKA100	E.CAPACITOR 16V 10U	1	
C3908	ECUM1C105ZFN	C.CAPACITOR CH 16V 1U	1	
C3909	ECEA0JKA101	E.CAPACITOR 6.3V 100U	1	
C3910	ECEA1CKA100	E.CAPACITOR 16V 10U	1	
C3911	ECEA0JKA470	E.CAPACITOR 6.3V 47U	1	
C3912,13	ECUM1H104ZFN	C.CAPACITOR CH 50V 0.1U	2	
C3914	ECEA1AKA470	E.CAPACITOR 10V 47U	1	
C3915	ECEA0JKA101	E.CAPACITOR 6.3V 100U	1	
C3916	ECUM1C105ZFN	C.CAPACITOR CH 16V 1U	1	
C4901,02	ECUM1H101JCN	C.CAPACITOR CH 50V 100P	2	
C4903-12	ECUM1H471JCN	C.CAPACITOR CH 50V 470P	10	
D3902	MA151WK	DIODE	1	
D3905,06	1SS254	DIODE	2	
IC3901	MC14053BF	IC	1	
IC3902	MC14052BF	IC	1	
IC3903	MC14051BF	IC	1	
IC4901,02	MC14052BF	IC	2	
IC4903	NJM4558M	IC	1	
JK3901,02	VJS1470	JACK	2	
L3902-05	VLQ0599J680	COIL 68UH	4	
L4901,02	VLQ0599J101	COIL 100UH	2	
L4903-08	VLQ0599J471	COIL 470UH	6	
PS3901	VJS3042F016W	CONNECTOR (FEMALE) 16P	1	
PS3902	VJS3042F013W	CONNECTOR (FEMALE) 13P	1	
PS3903,04	VJS3042B020W	CONNECTOR (FEMALE) 20P	2	
Q3903,04	2SB709A	TRANSISTOR	2	
Q3905,06	2SD601A	TRANSISTOR	2	
Q3907	2SB709A	TRANSISTOR	1	
Q3910	2SD1328	TRANSISTOR	1	
QR3902	MUN2211	TRANSISTOR-RESISTOR	1	
QR3903	MUN2111	TRANSISTOR-RESISTOR	1	
QR3904	UN2212	TRANSISTOR-RESISTOR	1	
R3905	ERDS2TJ561	C.RESISTOR 1/4W 560	1	
R3907	ERJ6GEYG104	M.RESISTOR CH 1/10W 100K	1	
R3909	ERJ6GEYF472	M.RESISTOR CH 1/10W 4.7K	1	
R3911	ERDS2TJ121	C.RESISTOR 1/4W 120	1	
R3912	ERJ6GEYG152	M.RESISTOR CH 1/10W 1.5K	1	
R3913	ERJ6GEYG332	M.RESISTOR CH 1/10W 3.3K	1	
R3914-22	ERJ6GEYG750	M.RESISTOR CH 1/10W 75	9	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
R3923	ERJ6GEYG121	M.RESISTOR CH 1/10W 120	1	
R3924	ERJ6GEYG331	M.RESISTOR CH 1/10W 330	1	
R3925	ERJ6GEYJ111	M.RESISTOR CH 1/10W 110	1	
R3926	ERJ6GEYF333	M.RESISTOR CH 1/10W 33K	1	
R3927	ERJ6GEYG223	M.RESISTOR CH 1/10W 22K	1	
R3928	ERJ6GEYF333	M.RESISTOR CH 1/10W 33K	1	
R3929	ERJ6GEYG223	M.RESISTOR CH 1/10W 22K	1	
R3930	ERJ6GEYG331	M.RESISTOR CH 1/10W 330	1	
R3931	ERJ6GEYG121	M.RESISTOR CH 1/10W 120	1	
R3932	ERJ6GEYG750	M.RESISTOR CH 1/10W 75	1	
R3933	ERJ6GEYJ111	M.RESISTOR CH 1/10W 110	1	
R3934-36	ERJ6GEYG750	M.RESISTOR CH 1/10W 75	3	
R3937	ERJ6GEYF822	M.RESISTOR CH 1/10W 8.2K	1	
R3938	ERJ6GEYF472	M.RESISTOR CH 1/10W 4.7K	1	
R4901,02	ERJ6GEYG222	M.RESISTOR CH 1/10W 2.2K	2	
R4904,05	ERJ6GEYJ471	M.RESISTOR CH 1/10W 470	2	
R4906-13	ERJ6GEYG101	M.RESISTOR CH 1/10W 100	8	
R4917,18	ERJ6GEYF473	M.RESISTOR CH 1/10W 47K	2	
R4926,27	ERJ6GEYF473	M.RESISTOR CH 1/10W 47K	2	
S3901	VSS0513	SWITCH	1	
ZA3901	VEJ1730	I/O JACK PLATE	1	
ZA3902-05	XTV3+8GFZ	SCREW	4	
■	VEP05176M	HEAD AMP C.B.A.		(RTL)
C503	ECUM1C105ZFN	C.CAPACITOR CH 16V 1U	1	
C505-08	ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	4	
C509	ECUM1H332KBN	C.CAPACITOR CH 50V 3300P	1	
C510,11	ECUM1H104ZFN	C.CAPACITOR CH 50V 0.1U	2	
C512	ECUM1H102KBN	C.CAPACITOR CH 50V 1000P	1	
C513	ECUM1H104ZFN	C.CAPACITOR CH 50V 0.1U	1	
C514	ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	1	
C515,16	ECUM1H104ZFN	C.CAPACITOR CH 50V 0.1U	2	
C517,18	ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	2	
C519,20	ECUM1H104ZFN	C.CAPACITOR CH 50V 0.1U	2	
C521	ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	1	
C523-25	ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	3	
C526	VCEA0JAC221	E.CAPASITOR 6.3V 220U	1	
C527	ECUM1H102KBN	C.CAPACITOR CH 50V 1000P	1	
C531	ECUM1H330JCN	C.CAPACITOR CH 50V 33P	1	
C532	ECUM1H560JCN	C.CAPACITOR CH 50V 56P	1	
C533,34	ECUM1H121JCN	C.CAPACITOR CH 50V 120P	2	
C535	ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	1	
C536	ECUM1H104ZFN	C.CAPACITOR CH 50V 0.1U	1	
C537	ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	1	
C538,39	ECUM1H680JCN	C.CAPACITOR CH 50V 68P	2	
C540	ECEA1CKA470	E.CAPACITOR 16V 47U	1	
C551	ECUM1H102KBN	C.CAPACITOR CH 50V 1000P	1	
C552-54	ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	3	
C555	ECEA0JPK221	E.CAPACTIOR 6.3V 220U	1	
C556,57	ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	2	
C559	ECUM1C105ZFN	C.CAPACITOR CH 16V 1U	1	
C560,61	ECUM1H471JCN	C.CAPACITOR CH 50V 470P	2	
C562,63	ECUM1H101JCN	C.CAPACITOR CH 50V 100P	2	
C564	ECUM1C105ZFN	C.CAPACITOR CH 16V 1U	1	
C565	ECUM1H101JCN	C.CAPACITOR CH 50V 100P	1	
C566	ECUM1H104ZFN	C.CAPACITOR CH 50V 0.1U	1	
C567	ECUM1H102KBN	C.CAPACITOR CH 50V 1000P	1	
C569	ECUM1C105ZFN	C.CAPACITOR CH 16V 1U	1	
IC501	AN3336SB	IC	1	
IC502	AN3370K	IC	1	
IC551	BA7743FS	IC	1	
K501	VLP0145	COIL	1	
K502	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	1	
K503,04	VLP0145	COIL	2	
K505	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	1	
K506	VLP0145	COIL	1	
K552	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
L501-03	VLQ0540K330	COIL 33UH	3	
L504	VLQ0540J5R6	COIL 5.6UH	1	
L551, 52	VLQ0540K330	COIL 33UH	2	
P501	VJS3537B020G	CONNECTOR (FEMALE) 20P	1	
P502	VJS2603	CONNECTOR (FEMALE)	1	
Q501	MSB709	TRANSISTOR	1	
Q502	MSD601	TRANSISTOR	1	
QR501	MRN2404	TRANSISTOR	1	
R501	ERJ6GMYG101	M. RESISTOR CH 1/10W 100	1	
R502	ERJ6GEYG152	M. RESISTOR CH 1/10W 1.5K	1	
R503	ERJ6GMYG752	M. RESISTOR CH 1/10W 7.5K	1	
R504	ERJ6GMYG333	M. RESISTOR CH 1/10W 33K	1	
R505	ERJ6GMYG182	M. RESISTOR CH 1/10W 1.8K	1	
R506	ERJ6GMYG392	M. RESISTOR CH 1/10W 3.9K	1	
R507	ERJ6GMYJ391	M. RESISTOR CH 1/10W 390	1	
R508	ERJ6GMYG331	M. RESISTOR CH 1/10W 330	1	
R509-12	ERJ6GMYG101	M. RESISTOR CH 1/10W 100	4	
R513	ERJ6GMYG103	M. RESISTOR CH 1/10W 10K	1	
R514	ERJ6GMYJ274	M. RESISTOR CH 1/10W 270K	1	
R517	ERJ6GMYG100	M. RESISTOR CH 1/10W 10	1	
R518, 19	ERJ6GMYG101	M. RESISTOR CH 1/10W 100	2	
R520	ERJ6GMYG152	M. RESISTOR CH 1/10W 1.5K	1	
R521, 22	ERJ6GMYG822	M. RESISTOR CH 1/10W 8.2K	2	
R523	ERJ6GMYG152	M. RESISTOR CH 1/10W 1.5K	1	
R524	ERJ6RBD182	M. RESISTOR CH 1/10W 1.8K	1	
R525	ERJ6RBD103	M. RESISTOR CH 1/10W 10K	1	
R526	ERJ6GMYG133	M. RESISTOR CH 1/10W 13K	1	
R551	ERJ6GMYG473	M. RESISTOR CH 1/10W 47K	1	
R552	ERJ6GMYJ391	M. RESISTOR CH 1/10W 390	1	
R553	ERJ6GMYG273	M. RESISTOR CH 1/10W 27K	1	
R554	ERJ6GMYG243	M. RESISTOR CH 1/10W 24K	1	
R556	ERJ6GMYG333	M. RESISTOR CH 1/10W 33K	1	
R557	ERJ6GMYG182	M. RESISTOR CH 1/10W 1.8K	1	
R558	ERJ6GMYG332	M. RESISTOR CH 1/10W 3.3K	1	
R559, 60	ERJ6GMYG152	M. RESISTOR CH 1/10W 1.5K	2	
R561	ERJ6GMYG332	M. RESISTOR CH 1/10W 3.3K	1	
R562	ERJ6GMYG102	M. RESISTOR CH 1/10W 1K	1	
R563	ERJ6RED100	M. RESISTOR CH 1/10W 10	1	
R564	ERJ6GMYG224	M. RESISTOR CH 1/10W 220K	1	
R565	ERJ6GMYG473	M. RESISTOR CH 1/10W 47K	1	
R566	ERJ6GMYG273	M. RESISTOR CH 1/10W 27K	1	
R567	ERJ6GMYG153	M. RESISTOR CH 1/10W 15K	1	
R568	ERJ6GMYG271	M. RESISTOR CH 1/10W 270	1	
R569	ERJ6GEYG102	M. RESISTOR CH 1/10W 1K	1	
R570	ERJ6GMYG102	M. RESISTOR CH 1/10W 1K	1	
		MISCELLANEOUS		
	VSC3478	H.A SHIELD COVER (MAIN)	1	
	VSC4580	H.A SHIELD COVER (TOP)	1	
	VSC4581	H.A SHIELD COVER (BOTT.)	1	
■	VEP07951A	TIMER C.B.A.		(RTL)
C7501	ECUM1H103ZFN	C. CAPACITOR CH 50V 0.01U	1	
C7502	ECEA1HKS100	E. CAPACITOR 50V 10U	1	
C7503	ECEA1AKS221	E. CAPACITOR 10V 220U	1	
C7504	ECUM1H104ZFN	C. CAPACITOR CH 50V 0.1U	1	
C7505	ECUM1H560JCN	C. CAPACITOR CH 50V 56P	1	
C7506	ECUM1H270JCN	C. CAPACITOR CH 50V 27P	1	
C7507	ECUM1H220JCN	C. CAPACITOR CH 50V 22P	1	
C7508	ECUM1H103ZFN	C. CAPACITOR CH 50V 0.01U	1	
C7509	VCE0073	SUPER CAPACITOR	1	
C7510	ECUM1H103ZFN	C. CAPACITOR CH 50V 0.01U	1	
C7512	ECUM1H104ZFN	C. CAPACITOR CH 50V 0.1U	1	
C7513	ECUM1H221JCN	C. CAPACITOR CH 50V 220P	1	
C7514	ECEA0JKS470	E. CAPACITOR 6.3V 47U	1	
C7515, 16	ECUM1H101JCN	C. CAPACITOR CH 50V 100P	2	
C7517, 18	ECUM1H103ZFN	C. CAPACITOR CH 50V 0.01U	2	
C7519, 20	ECUM1E473ZFN	C. CAPACITOR CH 25V 0.047U	2	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
C7521	ECUM1H104ZFN	C. CAPACITOR CH 50V 0.1U	1	
C7522	ECEA0JKS220	E. CAPACITOR 6.3V 22U	1	
C7523	ECUX1H223KBN	C. CAPACITOR CH 50V 0.022U	1	
C7524, 25	ECEA1EKS4R7	E. CAPACITOR 25V 4.7U	2	
C7527, 28	ECUM1H104ZFN	C. CAPACITOR CH 50V 0.1U	2	
C7529-33	ECUM1H101JCN	C. CAPACITOR CH 50V 100P	5	
D7501	MA4220-L	DIODE	1	
D7502	MA723-VT	DIODE	1	
D7503, 04	1SS254	DIODE	2	
D7505	MA723-VT	DIODE	1	
D7506	1SS254	DIODE	1	
D7512	1SS254	DIODE	1	
D7515	1SS254	DIODE	1	
D7517-21	1SS254	DIODE	5	
D7523-31	1SS254	DIODE	9	
DP7501	VSL0467	DISPLAY TUBE	1	
IC7501	M37507V6AJ	IC	1	
IC7502	PST7023	IC	1	
IC7503	S80743AL	IC	1	
IC7504	RPM-6937	IC	1	
IC7505	BA6810F	IC	1	
K7501	ERJ6GEY0R00	M. RESISTOR CH 1/10W 0	1	
K7503	ERJ6GEY0R00	M. RESISTOR CH 1/10W 0	1	
K7506	ERJ6GEY0R00	M. RESISTOR CH 1/10W 0	1	
P7501	VJS3673B025G	CONNECTOR (FEMALE) 25P	1	
P7502	VJP3405A009W	CONNECTOR (MALE) 9P	1	
PP7501	VJS3301	CONNECTOR (FEMALE)	1	
QR7501-04	MUN2113	TRANSISTOR-RESISTOR	4	
QR7505, 06	MUN2112	TRANSISTOR-RESISTOR	2	
QR7507-09	MUN2111	TRANSISTOR-RESISTOR	3	
R7501, 02	ERJ6GEY0R00	M. RESISTOR CH 1/10W 0	2	
R7503, 04	ERJ6GEYG132	M. RESISTOR CH 1/10W 1.3K	2	
R7505	ERJ6GEYG103	M. RESISTOR CH 1/10W 10K	1	
R7506	ERJ6GEYG101	M. RESISTOR CH 1/10W 100	1	
R7507	ERJ6GEYG331	M. RESISTOR CH 1/10W 330	1	
R7508	ERJ6GEYJ224	M. RESISTOR CH 1/10W 220K	1	
R7509	ERJ6GEYG181	M. RESISTOR CH 1/10W 180	1	
R7510	ERJ6GEYG221	M. RESISTOR CH 1/10W 220	1	
R7513	ERJ6GEYG102	M. RESISTOR CH 1/10W 1K	1	
R7515	ERJ6GEYG332	M. RESISTOR CH 1/10W 3.3K	1	
R7516	ERJ6GEYG221	M. RESISTOR CH 1/10W 220	1	
R7517	ERJ6GEYG332	M. RESISTOR CH 1/10W 3.3K	1	
R7518	ERJ6GEYG221	M. RESISTOR CH 1/10W 220	1	
R7519	ERJ6GEYG332	M. RESISTOR CH 1/10W 3.3K	1	
R7520, 21	ERJ6GEYG221	M. RESISTOR CH 1/10W 220	2	
R7522	ERJ6GEYG103	M. RESISTOR CH 1/10W 10K	1	
R7523-25	ERJ6GEYG221	M. RESISTOR CH 1/10W 220	3	
R7526-28	ERJ6GEYG332	M. RESISTOR CH 1/10W 3.3K	3	
R7529	ERDS2TJ470	C. RESISTOR 1/4W 47	1	
R7530, 31	ERJ6GEYG223	M. RESISTOR CH 1/10W 22K	2	
R7532	ERJ6GEYG272	M. RESISTOR CH 1/10W 2.7K	1	
R7533, 34	ERJ6GEYF473	M. RESISTOR CH 1/10W 47K	2	
R7535	ERJ6GEYG102	M. RESISTOR CH 1/10W 1K	1	
R7536	ERJ6GEYG223	M. RESISTOR CH 1/10W 22K	1	
R7537	ERJ6GEYG332	M. RESISTOR CH 1/10W 3.3K	1	
RX7501, 02	EXBF6E104J	RESISTOR-RESISTOR	2	
RX7503	EXBF8E104J	RESISTOR-RESISTOR	1	
S7501-12	EVQ11G09K	SWITCH	12	
S7513	VSQ0822	JOG/SHUTTLE ENCODER	1	
VC7501	ECRHA010A54R	V. CAPACITOR 50K	1	
VR4004	EVNCYAA03B53	V. RESISTOR 5K	1	
X7501	VSX0608	CRYSTAL OSCILLATOR	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
X7502	VSX0094	CRYSTAL OSCILLATOR	1	
ZB7501	VJF1139	FIP HOLDER	1	
ZB7502	VMD2247	IR RECEIVER HOLDER	1	
ZB7503	VMD2035	JOG/SHUTTLE HOLDER	1	
■	VEP03D75A	DIGITAL C. B. A.		(RTL)
C30002, 03	ECUX1H680JCV	C. CAPACITOR CH 50V 68P	2	
C30004, 05	ECUX1C104ZFV	C. CAPACITOR CH 16V 0. 1U	2	
C30006	ECUX1H103ZFV	C. CAPACITOR CH 50V 0. 01U	1	
C30007, 08	ECUX1H100DCV	C. CAPACITOR CH 50V 10P	2	
C30009	ECEA1CGE470	E. CAPACITOR 16V 47U	1	
C30010	ECUX1C104ZFV	C. CAPACITOR CH 16V 0. 1U	1	
C30011	ECUX1H181JCV	C. CAPACITOR CH 50V 180P	1	
C30012	ECUX1H151JCV	C. CAPACITOR CH 50V 150P	1	
C30013, 14	ECUX1H103ZFV	C. CAPACITOR CH 50V 0. 01U	2	
C30015	ECUX1H221JCV	C. CAPACITOR CH 50V 220P	1	
C30016	ECUX1H331JCV	C. CAPACITOR CH 50V 330P	1	
C30017	ECUX1H330JCV	C. CAPACITOR CH 50V 33P	1	
C30019	ECUX1H103ZFV	C. CAPACITOR CH 50V 0. 01U	1	
C30020	ECEA1CGE470	E. CAPACITOR 16V 47U	1	
C30021	ECUX1C104ZFV	C. CAPACITOR CH 16V 0. 1U	1	
C30022	ECUX1H560JCV	C. CAPACITOR CH 50V 56P	1	
C30023	EEVHB1H3R3	E. CAPACITOR 50V 3. 3U	1	
C30024	ECUX1H103ZFV	C. CAPACITOR CH 50V 0. 01U	1	
C30025	ECUX1H391JCV	C. CAPACITOR CH 50V 390P	1	
C30026	ECUX1H080DCV	C. CAPACITOR CH 50V 8P	1	
C30027	ECUX1H560JCV	C. CAPACITOR CH 50V 56P	1	
C30028	ECUX1H103ZFV	C. CAPACITOR CH 50V 0. 01U	1	
C30029	ECUX1H681JCV	C. CAPACITOR CH 50V 680P	1	
C30030	ECUX1H330JCV	C. CAPACITOR CH 50V 33P	1	
C30031	ECUX1H180JCV	C. CAPACITOR CH 50V 18P	1	
C30032	ECUX1H220JCV	C. CAPACITOR CH 50V 22P	1	
C30033	ECUX1H151JCV	C. CAPACITOR CH 50V 150P	1	
C30034	ECUX1H103ZFV	C. CAPACITOR CH 50V 0. 01U	1	
C30035	ECUX1H100DCV	C. CAPACITOR CH 50V 10P	1	
C30036	ECUX1H220JCV	C. CAPACITOR CH 50V 22P	1	
C30037-41	ECUX1H103ZFV	C. CAPACITOR CH 50V 0. 01U	5	
C30042	ECUX1H180JCV	C. CAPACITOR CH 50V 18P	1	
C30043	ECUX1H103ZFV	C. CAPACITOR CH 50V 0. 01U	1	
C30044	ECUX1H100DCV	C. CAPACITOR CH 50V 10P	1	
C30045	ECUX1H820JCV	C. CAPACITOR CH 50V 82P	1	
C30047	ECUX1H103ZFV	C. CAPACITOR CH 50V 0. 01U	1	
C30048	ECUX1H150JCV	C. CAPACITOR CH 50V 15P	1	
C30049-51	ECUX1H103ZFV	C. CAPACITOR CH 50V 0. 01U	3	
C30052	ECUX1C104ZFV	C. CAPACITOR CH 16V 0. 1U	1	
C30053	ECUX1H390JCV	C. CAPACITOR CH 50V 39P	1	
C30054	ECUX1H100DCV	C. CAPACITOR CH 50V 10P	1	
C30055	ECUX1H470JCV	C. CAPACITOR CH 50V 47P	1	
C30056	ECUX1H103KBV	C. CAPACITOR CH 50V 0. 01U	1	
C30057	ECUX1A105ZFV	C. CAPACITOR CH 10V 1U	1	
C30058	ECEA1CGE470	E. CAPACITOR 16V 47U	1	
C30059	ECUX1H103ZFV	C. CAPACITOR CH 50V 0. 01U	1	
C30060	EEVHB1C100	E. CAPACITOR 16V 10U	1	
C30061	EEVHB1H3R3	E. CAPACITOR 50V 3. 3U	1	
C30062	ECUM1C184KBN	C. CAPACITOR CH 16V 0. 18U	1	
C30063	ECUM1E683KBN	C. CAPACITOR CH 25V 0. 068U	1	
C30064	ECUX1C104ZFV	C. CAPACITOR CH 16V 0. 1U	1	
C30065	ECEA1AGE101	E. CAPACITOR 10V 100U	1	
C30066	ECUX1H103ZFV	C. CAPACITOR CH 50V 0. 01U	1	
C30067	ECQB1H103KF	P. CAPACITOR 50V 0. 01U	1	
C30068	EEVHB1E4R7	E. CAPACITOR 25V 4. 7U	1	
C30069	ECUX1H103ZFV	C. CAPACITOR CH 50V 0. 01U	1	
C30070	EEVHB1C100	E. CAPACITOR 16V 10U	1	
C30071	ECUX1H103ZFV	C. CAPACITOR CH 50V 0. 01U	1	
C30072	EEVHB1E4R7	E. CAPACITOR 25V 4. 7U	1	
C30073	ECUX1H103ZFV	C. CAPACITOR CH 50V 0. 01U	1	
C30074	EEVHB1C100	E. CAPACITOR 16V 10U	1	
C30075	ECUX1H101GCV	C. CAPACITOR CH 50V 100P	1	
C30076	ECUX1H151GCV	C. CAPACITOR CH 50V 150P	1	
C30077	ECUX1H471GCV	C. CAPACITOR CH 50V 470P	1	
C30078	ECUX1H080DCV	C. CAPACITOR CH 50V 8P	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
C30079	ECUX1H390JCV	C. CAPACITOR CH 50V 39P	1	
C30080	ECUX1H330JCV	C. CAPACITOR CH 50V 33P	1	
C30083	ECUX1H103ZFV	C. CAPACITOR CH 50V 0. 01U	1	
C30085	ECUX1H103ZFV	C. CAPACITOR CH 50V 0. 01U	1	
C30087, 88	ECUX1H103ZFV	C. CAPACITOR CH 50V 0. 01U	2	
C30089	EEVHB1H1R0	E. CAPACITOR 50V 1U	1	
C30090	ECUX1H103ZFV	C. CAPACITOR CH 50V 0. 01U	1	
C30091	ECEA1AGE101	E. CAPACITOR 10V 100U	1	
C30092	ECUX1C104ZFV	C. CAPACITOR CH 16V 0. 1U	1	
C30093	EEVHB1E4R7	E. CAPACITOR 25V 4. 7U	1	
C30094	ECUX1H471JCV	C. CAPACITOR CH 50V 470P	1	
C30096	ECUX1H390JCV	C. CAPACITOR CH 50V 39P	1	
C30097	ECUX1H102KBV	C. CAPACITOR CH 50V 1000P	1	
C30099	ECUX1H103ZFV	C. CAPACITOR CH 50V 0. 01U	1	
C30100, 01	ECUX1H221JCV	C. CAPACITOR CH 50V 220P	2	
C30102, 03	ECUM1E104KBN	C. CAPACITOR CH 25V 0. 1U	2	
C30104	ECUX1H681JCV	C. CAPACITOR CH 50V 680P	1	
C30105	ECQV1H154JM	P. CAPACITOR 50V 0. 15U	1	
C30106	ECUX1H471JCV	C. CAPACITOR CH 50V 470P	1	
C30107	ECUX1H820JCV	C. CAPACITOR CH 50V 82P	1	
C30108	ECEA1HGE2R2	E. CAPACITOR 50V 2. 2U	1	
C30109	ECUX1H472KBV	C. CAPACITOR CH 50V 4700P	1	
C30110	ECUX1C104ZFV	C. CAPACITOR CH 16V 0. 1U	1	
C30111	ECEA1AGE101	E. CAPACITOR 10V 100U	1	
C30112-14	ECUX1H103ZFV	C. CAPACITOR CH 50V 0. 01U	3	
C30115	ECUX1H221JCV	C. CAPACITOR CH 50V 220P	1	
C30116	ECUX1H103ZFV	C. CAPACITOR CH 50V 0. 01U	1	
C30117	ECUX1H470JCV	C. CAPACITOR CH 50V 47P	1	
C30118	ECUX1H120JCV	C. CAPACITOR CH 50V 12P	1	
C30119	ECUX1H270JCV	C. CAPACITOR CH 50V 27P	1	
C30128	ECUX1H470JCV	C. CAPACITOR CH 50V 47P	1	
C30130	ECUX1H101JCV	C. CAPACITOR CH 50V 100P	1	
C30131	ECUX1H270JCV	C. CAPACITOR CH 50V 27P	1	
C30132	ECUX1H470JCV	C. CAPACITOR CH 50V 47P	1	
C30134	ECUX1H470JCV	C. CAPACITOR CH 50V 47P	1	
C30135	ECUX1H050DCV	C. CAPACITOR CH 50V 5P	1	
C33002	ECUX1C104ZFV	C. CAPACITOR CH 16V 0. 1U	1	
C33004	EEVHB0J470	E. CAPACITOR 6. 3V 47U	1	
C33006	ECUX1C104ZFV	C. CAPACITOR CH 16V 0. 1U	1	
C33008	EEVHB0J470	E. CAPACITOR 6. 3V 47U	1	
C33010, 11	ECUX1C104ZFV	C. CAPACITOR CH 16V 0. 1U	2	
C33012	ECUX1H222KBV	C. CAPACITOR CH 50V 2200P	1	
C33013	EEVHB0J470	E. CAPACITOR 6. 3V 47U	1	
C33014	EEVHB1C100	E. CAPACITOR 16V 10U	1	
C33015	EEVHB0J470	E. CAPACITOR 6. 3V 47U	1	
C33016	ECUX1C104ZFV	C. CAPACITOR CH 16V 0. 1U	1	
C33017	EEVHB1C100	E. CAPACITOR 16V 10U	1	
C33018	ECUX1H180JCV	C. CAPACITOR CH 50V 18P	1	
C33019	EEVHB0J470	E. CAPACITOR 6. 3V 47U	1	
C33020, 21	ECUX1C104ZFV	C. CAPACITOR CH 16V 0. 1U	2	
C33023, 24	ECUX1C104ZFV	C. CAPACITOR CH 16V 0. 1U	2	
C33025	ECUM1C105ZFN	C. CAPACITOR CH 16V 1U	1	
C33026	EEVHB0J470	E. CAPACITOR 6. 3V 47U	1	
C33027	ECUX1C104ZFV	C. CAPACITOR CH 16V 0. 1U	1	
C33028	EEVHB0J470	E. CAPACITOR 6. 3V 47U	1	
C33029	ECUX1C104ZFV	C. CAPACITOR CH 16V 0. 1U	1	
C33030	EEVHB0J470	E. CAPACITOR 6. 3V 47U	1	
C33031	ECUX1C104ZFV	C. CAPACITOR CH 16V 0. 1U	1	
C33032, 33	EEVHB1C100	E. CAPACITOR 16V 10U	2	
C33034	ECUX1H103ZFV	C. CAPACITOR CH 50V 0. 01U	1	
C33035-41	ECUX1C104ZFV	C. CAPACITOR CH 16V 0. 1U	7	
C33042	ECUX1H103ZFV	C. CAPACITOR CH 50V 0. 01U	1	
C33043-49	ECUX1C104ZFV	C. CAPACITOR CH 16V 0. 1U	7	
C33050	ECUX1H562KBV	C. CAPACITOR CH 50V 5600P	1	
C33051	ECUX1H470JCV	C. CAPACITOR CH 50V 47P	1	
C33052	ECUX1H330JCV	C. CAPACITOR CH 50V 33P	1	
C33053	ECUX1H103ZFV	C. CAPACITOR CH 50V 0. 01U	1	
C33054	ECUX1H221JCV	C. CAPACITOR CH 50V 220P	1	
C33055	ECUX1H331JCV	C. CAPACITOR CH 50V 330P	1	
C35101	ECEA1CKA101	E. CAPACITOR 16V 100U	1	
C35102	ECEA1EKA4R7	E. CAPACITOR 25V 4. 7U	1	
C35103	ECUX1H472KBV	C. CAPACITOR CH 50V 4700P	1	
C35104	ECQP1H472JZ	P. CAPACITOR 50V 4700P	1	
C35105	ECUX1E223KBV	C. CAPACITOR CH 25V 0. 022U	1	
C35106	ECUX1H103ZFV	C. CAPACITOR CH 50V 0. 01U	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
C35107, 08	ECUX1C224ZFV	C. CAPACITOR CH 16V 0. 22U	2	
C35109	ECQB1H273JF	P. CAPACITOR 50V 0. 027U	1	
D30001, 02	MA141K	DIODE	2	
D30003-05	MA141WK	DIODE	3	
D30006	MA141K	DIODE	1	
D30008, 09	MA141K	DIODE	2	
D30011	MA141K	DIODE	1	
D30012	MA141WK	DIODE	1	
D30013	MA141K	DIODE	1	
D30014	MA721	DIODE	1	
D30015	MA141K	DIODE	1	
D30016	MA141WK	DIODE	1	
D33001-03	MA745	DIODE	3	
D33004	MA141K	DIODE	1	
FL30001	VLF1141	FILTER	1	
FL30002	ELB4R060	FILTER	1	
FL30004	ELB3H016	FILTER	1	
FL33001	ELKE470FA	FILTER	1	
FL33002-04	ELKE103FA	FILTER	3	
FL33005	ELKE470FA	FILTER	1	
FL33006	ELKE103FA	FILTER	1	
FL33007	ELKE101FA	FILTER	1	
FL33008, 09	ELKE470FA	FILTER	2	
FL33010-12	ELKE103FA	FILTER	3	
FL33013	ELKE470FA	FILTER	1	
FL33015, 16	ELKE101FA	FILTER	2	
FL33017	ELKE103FA	FILTER	1	
FL33018	ELKE470FA	FILTER	1	
FL33019	ELKE101FA	FILTER	1	
FL33020	ELKE103FA	FILTER	1	
FL33021-23	ELKE470FA	FILTER	3	
FL33024, 25	ELKE103FA	FILTER	2	
FL33026	ELKE101FA	FILTER	1	
FL33027, 28	ELKE103FA	FILTER	2	
FL33029, 30	ELKE101FA	FILTER	2	
FL33031	ELKE103FA	FILTER	1	
FL33032	ELKE101FA	FILTER	1	
IC30001	M52083FP	IC	1	
IC30002	MC14066BF	IC	1	
IC30003	M52373BFP	IC	1	
IC30004	AN1358S	IC	1	
IC33001	ST24W01FM6TR	IC	1	
IC33002	SC371024CFU	IC	1	
IC33003	MN67152	IC	1	
IC33004	MN7A097B2C	IC	1	
IC33005	TC7SHU04FU	IC	1	
IC33006	F432536PH	IC	1	
IC33007	MN47V77S	IC	1	
IC33008	PST591DM	IC	1	
IC33009	TC7SHU04FU	IC	1	
IC33010	TC7S04F	IC	1	
IC33011	TC7S02F	IC	1	
IC33012	TC7S32F	IC	1	
IC35101	TDA2595	IC	1	
IC35102	BA225F	IC	1	
K33001	ERJ3GEY0R00	M. RESISTOR CH 1/16W 0	1	
L30001	VLQ0163J330	COIL 33UH	1	
L30002	VLQ0163J151	COIL 150UH	1	
L30003	ELESE820KA	INDUCTOR 82UH	1	
L30004	ELESE181KA	INDUCTOR 180UH	1	
L30005	VLQ0163J330	COIL 33UH	1	
L30006	VLQ0163J181	COIL 180UH	1	
L30007	VLQ0163J270	COIL 27UH	1	
L30008	VLQ0163J101	COIL 100UH	1	
L30009	VLQ0163J120	COIL 12UH	1	
L30010	VLQ0163J6R8	COIL 6. 8UH	1	
L30011	VLQ0163J390	COIL 39UH	1	
L30012	VLQ0163J150	COIL 15UH	1	
L30013	VLQ0163J120	COIL 12UH	1	
L30014	VLQ0163J390	COIL 39UH	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
L30015	VLQ0163J100	COIL 10UH	1	
L30016	ELESE390KA	INDUCTOR 39UH	1	
L30017	ELESE101KA	INDUCTOR 100UH	1	
L30018	VLQ0163J820	COIL 82UH	1	
L30019, 20	VLQ0163J560	COIL 56UH	2	
L30022	ELESE101KA	INDUCTOR 100UH	1	
L30024	ELESE221K	INDUCTOR 220UH	1	
L30025, 26	ELESE681KA	INDUCTOR 680UH	2	
L30027	ELESE331KA	INDUCTOR 330UH	1	
L30028	ELESE390KA	INDUCTOR 39UH	1	
L30029	ELESE101KA	INDUCTOR 100UH	1	
L30030	VLQ0163J5R6	COIL 5. 6UH	1	
L30031	VLQ0163J3R9	COIL 3. 9UH	1	
L30032	VLQ0163J120	COIL 12UH	1	
L30034	VLQ0163J330	COIL 33UH	1	
L30036	VLQ0163J560	COIL 56UH	1	
L30037	VLQ0163J330	COIL 33UH	1	
L30038	VLQ0163J560	COIL 56UH	1	
L30039	ELESE101KA	INDUCTOR 100UH	1	
L30040	VLQ0163J101	COIL 100UH	1	
LB33001, 02	VLP0192	COIL	2	
LB33004, 05	VLP0196	COIL	2	
LB33006	VLP0146	COIL	1	
LB33007-10	VLP0196	COIL	4	
P30001, 02	VJS3537A017G	CONNECTOR (FEMALE) 17P	2	
P30003	VJS3537A010G	CONNECTOR (FEMALE) 10P	1	
P33001, 02	VJS3794B017N	CONNECTOR (FEMALE) 17P	2	
P33003	VJS3794B010N	CONNECTOR (FEMALE) 10P	1	
PP30001	VJP3043G007W	CONNECTOR (MALE) 7P	1	
PS30001, 02	VJS3186B018	CONNECTOR (FEMALE) 18P	2	
PS30003	VJS3042F007W	CONNECTOR (FEMALE) 7P	1	
PS35101	VJS3043B007W	CONNECTOR (FEMALE) 7P	1	
Q30001	2SB1218	TRANSISTOR	1	
Q30002-07	2SD1819	TRANSISTOR	6	
Q30008, 09	2SB1218	TRANSISTOR	2	
Q30010, 11	2SC3930	TRANSISTOR	2	
Q30012	2SD1819	TRANSISTOR	1	
Q30013, 14	2SC3930	TRANSISTOR	2	
Q30015	2SB1218	TRANSISTOR	1	
Q30018	2SC3930	TRANSISTOR	1	
Q30019	2SA1532	TRANSISTOR	1	
Q30020, 21	2SB1218	TRANSISTOR	2	
Q30023-25	2SD1819	TRANSISTOR	3	
Q30028	2SC3930	TRANSISTOR	1	
Q30029	2SD1819	TRANSISTOR	1	
Q30030	XN1501	TRANSISTOR-RESISTOR	1	
Q30031	2SA1532	TRANSISTOR	1	
Q30032	2SD1819	TRANSISTOR	1	
Q33002	2SD1819	TRANSISTOR	1	
Q33003	2SA1532	TRANSISTOR	1	
Q33004	2SB1218	TRANSISTOR	1	
Q33006, 07	2SB1218	TRANSISTOR	2	
Q35101	2SB1218	TRANSISTOR	1	
QR30001	UN5211	TRANSISTOR-RESISTOR	1	
QR30002	UN5213	TRANSISTOR-RESISTOR	1	
QR30003	UN5211	TRANSISTOR-RESISTOR	1	
QR30004, 05	DTC363EK	TRANSISTOR-RESISTOR	2	
QR30006	UN511E	TRANSISTOR-RESISTOR	1	
QR30007	UN5211	TRANSISTOR-RESISTOR	1	
QR30008	UN5213	TRANSISTOR-RESISTOR	1	
QR30009	XN1213	TRANSISTOR-RESISTOR	1	
QR30010	UN511D	TRANSISTOR-RESISTOR	1	
QR30011	UN5113	TRANSISTOR-RESISTOR	1	
QR30012	UN5213	TRANSISTOR-RESISTOR	1	
QR30013	UN5112	TRANSISTOR-RESISTOR	1	
QR30015, 16	XN1213	TRANSISTOR-RESISTOR	2	
QR30017-19	UN5213	TRANSISTOR-RESISTOR	3	
QR30020	UN5113	TRANSISTOR-RESISTOR	1	
QR30021	UN5115	TRANSISTOR-RESISTOR	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
QR30022	UN5213	TRANSISTOR-RESISTOR	1	
QR30024	UN5211	TRANSISTOR-RESISTOR	1	
QR30026	XN1213	TRANSISTOR-RESISTOR	1	
QR30029	UN511D	TRANSISTOR-RESISTOR	1	
QR30031	UN5211	TRANSISTOR-RESISTOR	1	
QR30032	UN5113	TRANSISTOR-RESISTOR	1	
QR30033, 34	UN5213	TRANSISTOR-RESISTOR	2	
QR33003	UN5212	TRANSISTOR-RESISTOR	1	
QR33004	UN5213	TRANSISTOR-RESISTOR	1	
QR33005, 06	UN5113	TRANSISTOR-RESISTOR	2	
QR33007	UN5213	TRANSISTOR-RESISTOR	1	
QR33008	UN5211	TRANSISTOR-RESISTOR	1	
QR33009	UN5113	TRANSISTOR-RESISTOR	1	
QR33010-13	UN5213	TRANSISTOR-RESISTOR	4	
R30002, 03	ERJ3GEYG102	M.RESISTOR CH 1/16W 1K	2	
R30004	ERJ3GEYJ391	M.RESISTOR CH 1/16W 390	1	
R30005	ERJ3GEYJ473	M.RESISTOR CH 1/16W 47K	1	
R30006	ERJ3GEYJ681	M.RESISTOR CH 1/16W 680	1	
R30007	ERJ3GEYJ182	M.RESISTOR CH 1/16W 1.8K	1	
R30008	ERJ3GEYG102	M.RESISTOR CH 1/16W 1K	1	
R30009	ERJ3GEYJ561	M.RESISTOR CH 1/16W 560	1	
R30010	ERJ3GEYG682	M.RESISTOR CH 1/16W 6.8K	1	
R30011	ERJ3GEYJ333	M.RESISTOR CH 1/16W 33K	1	
R30012	ERJ3GEYJ391	M.RESISTOR CH 1/16W 390	1	
R30013	ERJ3GEYG471	M.RESISTOR CH 1/16W 470	1	
R30014	ERJ3GEYG102	M.RESISTOR CH 1/16W 1K	1	
R30015	ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	1	
R30016	ERJ3GEYJ681	M.RESISTOR CH 1/16W 680	1	
R30017	ERJ3GEYG682	M.RESISTOR CH 1/16W 6.8K	1	
R30018, 19	ERJ3GEYG102	M.RESISTOR CH 1/16W 1K	2	
R30020	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R30021	ERJ3GEYJ563	M.RESISTOR CH 1/16W 56K	1	
R30022	ERJ3GEYJ101	M.RESISTOR CH 1/16W 100	1	
R30023	ERJ3GEYJ333	M.RESISTOR CH 1/16W 33K	1	
R30024	ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	1	
R30025	ERJ3GEYJ391	M.RESISTOR CH 1/16W 390	1	
R30026	ERJ3GEYG102	M.RESISTOR CH 1/16W 1K	1	
R30027, 28	ERJ3GEYJ821	M.RESISTOR CH 1/16W 820	2	
R30029	ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	1	
R30030	ERJ3GEYG152	M.RESISTOR CH 1/16W 1.5K	1	
R30031	ERJ3GEYG102	M.RESISTOR CH 1/16W 1K	1	
R30032	ERJ3GEYJ821	M.RESISTOR CH 1/16W 820	1	
R30033	ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	1	
R30034	ERJ3GEYJ272	M.RESISTOR CH 1/16W 2.7K	1	
R30035	ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	1	
R30036	ERJ3GEYJ393	M.RESISTOR CH 1/16W 39K	1	
R30037	ERJ3GEYG471	M.RESISTOR CH 1/16W 470	1	
R30038	ERJ3GEYJ561	M.RESISTOR CH 1/16W 560	1	
R30039	ERJ3GEYG152	M.RESISTOR CH 1/16W 1.5K	1	
R30040-42	ERJ3GEYG102	M.RESISTOR CH 1/16W 1K	3	
R30043	ERJ3GEYJ821	M.RESISTOR CH 1/16W 820	1	
R30044	ERJ3GEYG152	M.RESISTOR CH 1/16W 1.5K	1	
R30045	ERJ3GEYG472	M.RESISTOR CH 1/16W 4.7K	1	
R30046	ERJ3GEYJ562	M.RESISTOR CH 1/16W 5.6K	1	
R30047	ERJ3GEYG472	M.RESISTOR CH 1/16W 4.7K	1	
R30049	ERJ3GEYG102	M.RESISTOR CH 1/16W 1K	1	
R30050	ERJ3GEYG152	M.RESISTOR CH 1/16W 1.5K	1	
R30051	ERJ3GEYG332	M.RESISTOR CH 1/16W 3.3K	1	
R30052	ERJ3GEYG102	M.RESISTOR CH 1/16W 1K	1	
R30053	ERJ3GEYJ331	M.RESISTOR CH 1/16W 330	1	
R30054	ERJ3GEYG102	M.RESISTOR CH 1/16W 1K	1	
R30055-57	ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	3	
R30058	ERJ3GEYG472	M.RESISTOR CH 1/16W 4.7K	1	
R30059, 60	ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	2	
R30063	ERJ3GEYG102	M.RESISTOR CH 1/16W 1K	1	
R30064	ERJ3GEYJ221	M.RESISTOR CH 1/16W 220	1	
R30065	ERJ3GEYJ391	M.RESISTOR CH 1/16W 390	1	
R30066	ERJ3GEYJ222	M.RESISTOR CH 1/16W 2.2K	1	
R30067	ERJ3GEYG471	M.RESISTOR CH 1/16W 470	1	
R30068	ERJ3GEYG152	M.RESISTOR CH 1/16W 1.5K	1	
R30069	ERJ3GEYG102	M.RESISTOR CH 1/16W 1K	1	
R30070	ERJ3GEYJ101	M.RESISTOR CH 1/16W 100	1	
R30071	ERJ3GEYJ182	M.RESISTOR CH 1/16W 1.8K	1	
R30072	ERJ3GEYG822	M.RESISTOR CH 1/16W 8.2K	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
R30074	ERJ3GEYK395	M.RESISTOR CH1/16W 3.9M	1	
R30075	ERJ3GEYJ473	M.RESISTOR CH 1/16W 47K	1	
R30076	ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	1	
R30077	ERJ3GEYJ223	M.RESISTOR CH 1/16W 22K	1	
R30078	ERJ3GEYJ154	M.RESISTOR CH 1/16W 150K	1	
R30079	ERJ3GEYJ222	M.RESISTOR CH 1/16W 2.2K	1	
R30080, 81	ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	2	
R30082	ERJ3RBD331	M.RESISTOR CH 1/16W 330	1	
R30083	ERJ3RBD122	M.RESISTOR CH 1/16W 1.2K	1	
R30084	ERJ3GEYJ473	M.RESISTOR CH 1/16W 47K	1	
R30085	ERJ3RBD431	M.RESISTOR CH 1/16W 430	1	
R30086	ERJ3RBD152	M.RESISTOR CH 1/16W 1.5K	1	
R30087	ERJ3GEYJ222	M.RESISTOR CH 1/16W 2.2K	1	
R30088	ERJ3GEYJ392	M.RESISTOR CH 1/16W 3.9K	1	
R30089	ERJ3GEYJ681	M.RESISTOR CH 1/16W 680	1	
R30092	ERJ3GEYG102	M.RESISTOR CH 1/16W 1K	1	
R30093	ERJ3GEYJ473	M.RESISTOR CH 1/16W 47K	1	
R30094, 95	ERJ3GEYJ122	M.RESISTOR CH 1/16W 1.2K	2	
R30096	ERJ3GEYJ223	M.RESISTOR CH 1/16W 22K	1	
R30097	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R30098	ERJ3GEYG472	M.RESISTOR CH 1/16W 4.7K	1	
R30099	ERJ3RBD361	M.RESISTOR CH 1/16W 360	1	
R30100	ERJ3GEYJ333	M.RESISTOR CH 1/16W 33K	1	
R30101	ERJ3GEYJ223	M.RESISTOR CH 1/16W 22K	1	
R30102	ERJ3GEYJ183	M.RESISTOR CH 1/16W 18K	1	
R30103-05	ERJ3GEYG102	M.RESISTOR CH 1/16W 1K	3	
R30106	ERJ3GEYJ681	M.RESISTOR CH 1/16W 680	1	
R30107	ERJ3GEYJ181	M.RESISTOR CH 1/16W 180	1	
R30108	ERJ3GEYJ561	M.RESISTOR CH 1/16W 560	1	
R30109	ERJ3GEYJ242	M.RESISTOR CH 1/16W 2.4K	1	
R30113	ERJ3GEYJ561	M.RESISTOR CH 1/16W 560	1	
R30114	ERJ3GEYJ223	M.RESISTOR CH 1/16W 22K	1	
R30115, 16	ERJ3GEYG102	M.RESISTOR CH 1/16W 1K	2	
R30117	ERJ3GEYJ473	M.RESISTOR CH 1/16W 47K	1	
R30118	ERJ3GEYG471	M.RESISTOR CH 1/16W 470	1	
R30119, 20	ERJ3GEYJ473	M.RESISTOR CH 1/16W 47K	2	
R30121	ERJ3GEYG682	M.RESISTOR CH 1/16W 6.8K	1	
R30122	ERJ3GEYG332	M.RESISTOR CH 1/16W 3.3K	1	
R30123	ERJ3GEYJ333	M.RESISTOR CH 1/16W 33K	1	
R30124, 25	ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	2	
R30126	ERJ3GEYG332	M.RESISTOR CH 1/16W 3.3K	1	
R30127	ERJ3GEYJ222	M.RESISTOR CH 1/16W 2.2K	1	
R30131	ERJ3GEYG332	M.RESISTOR CH 1/16W 3.3K	1	
R30132	ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	1	
R30133	ERJ3GEYJ153	M.RESISTOR CH 1/16W 15K	1	
R30134	ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	1	
R30135	ERJ3GEYJ223	M.RESISTOR CH 1/16W 22K	1	
R30137	ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	1	
R30139	ERJ3GEYG363	M.RESISTOR CH 1/16W 36K	1	
R30140	ERJ3GEYG153	M.RESISTOR CH 1/16W 15K	1	
R30141	ERJ3GEYJ561	M.RESISTOR CH 1/16W 560	1	
R30142	ERJ3GEYJ222	M.RESISTOR CH 1/16W 2.2K	1	
R30143, 44	ERJ3GEYJ821	M.RESISTOR CH 1/16W 820	2	
R30154	ERJ3GEYJ821	M.RESISTOR CH 1/16W 820	1	
R30156	ERJ3GEYJ561	M.RESISTOR CH 1/16W 560	1	
R30157	ERJ3GEYJ221	M.RESISTOR CH 1/16W 220	1	
R30158	ERJ3GEYG152	M.RESISTOR CH 1/16W 1.5K	1	
R30159	ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	1	
R30160	ERJ6GEYG821	M.RESISTOR CH 1/10W 820	1	
R30161	ERJ3GEYG332	M.RESISTOR CH 1/16W 3.3K	1	
R30162	ERJ3GEYJ106	M.RESISTOR CH 1/16W 10M	1	
R30163	ERJ3GEYG152	M.RESISTOR CH 1/16W 1.5K	1	
R33001	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R33002	ERJ3GEYJ222	M.RESISTOR CH 1/16W 2.2K	1	
R33003	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R33004	ERJ3GEYJ153	M.RESISTOR CH 1/16W 15K	1	
R33005	ERJ3GEYJ333	M.RESISTOR CH 1/16W 33K	1	
R33006	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R33007	ERJ3GEYJ153	M.RESISTOR CH 1/16W 15K	1	
R33008	ERJ3GEYJ333	M.RESISTOR CH 1/16W 33K	1	
R33009	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R33010	ERJ3GEYG822	M.RESISTOR CH 1/16W 8.2K	1	
R33011	ERJ3GEYJ333	M.RESISTOR CH 1/16W 33K	1	
R33012	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R33013	ERJ3GEYG152	M.RESISTOR CH 1/16W 1.5K	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
R33014	ERJ3GEYG472	M.RESISTOR CH 1/16W 4.7K	1	
R33015	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R33016	ERJ3GEYJ153	M.RESISTOR CH 1/16W 15K	1	
R33017	ERJ3GEYJ333	M.RESISTOR CH 1/16W 33K	1	
R33018	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R33019	ERJ3GEYJ153	M.RESISTOR CH 1/16W 15K	1	
R33020	ERJ3GEYJ333	M.RESISTOR CH 1/16W 33K	1	
R33021	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R33022	ERJ3GEYJ221	M.RESISTOR CH 1/16W 220	1	
R33023	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R33024	ERJ3GEYJ101	M.RESISTOR CH 1/16W 100	1	
R33025	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R33026	ERJ3GEYJ153	M.RESISTOR CH 1/16W 15K	1	
R33027	ERJ3GEYJ333	M.RESISTOR CH 1/16W 33K	1	
R33028	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R33029	ERJ3GEYJ153	M.RESISTOR CH 1/16W 15K	1	
R33030	ERJ3GEYJ333	M.RESISTOR CH 1/16W 33K	1	
R33031	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R33032	ERJ3GEYJ153	M.RESISTOR CH 1/16W 15K	1	
R33033	ERJ3GEYJ333	M.RESISTOR CH 1/16W 33K	1	
R33034	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R33035	ERJ3GEYJ101	M.RESISTOR CH 1/16W 100	1	
R33038	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R33039	ERJ3GEYG152	M.RESISTOR CH 1/16W 1.5K	1	
R33040	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R33041	ERJ3GEYJ562	M.RESISTOR CH 1/16W 5.6K	1	
R33042	ERJ3GEYG682	M.RESISTOR CH 1/16W 6.8K	1	
R33043	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R33044	ERJ3GEYJ153	M.RESISTOR CH 1/16W 15K	1	
R33045	ERJ3GEYJ333	M.RESISTOR CH 1/16W 33K	1	
R33046	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R33047	ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	1	
R33048	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R33049	ERJ3GEYJ153	M.RESISTOR CH 1/16W 15K	1	
R33050	ERJ3GEYJ473	M.RESISTOR CH 1/16W 47K	1	
R33051	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R33052	ERJ3GEYJ101	M.RESISTOR CH 1/16W 100	1	
R33053	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R33054	ERJ3GEYJ101	M.RESISTOR CH 1/16W 100	1	
R33055	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R33056	ERJ3GEYJ101	M.RESISTOR CH 1/16W 100	1	
R33057	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R33058	ERJ3GEYJ101	M.RESISTOR CH 1/16W 100	1	
R33059	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R33060	ERJ3GEYJ153	M.RESISTOR CH 1/16W 15K	1	
R33061	ERJ3GEYJ104	M.RESISTOR CH 1/16W 100K	1	
R33062	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R33063	ERJ3GEYJ101	M.RESISTOR CH 1/16W 100	1	
R33064	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R33065	ERJ3GEYJ153	M.RESISTOR CH 1/16W 15K	1	
R33066	ERJ3GEYJ223	M.RESISTOR CH 1/16W 22K	1	
R33067	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R33068	ERJ3GEYJ153	M.RESISTOR CH 1/16W 15K	1	
R33069	ERJ3GEYJ333	M.RESISTOR CH 1/16W 33K	1	
R33070	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R33071	ERJ3GEYJ222	M.RESISTOR CH 1/16W 2.2K	1	
R33072	ERJ3GEYG472	M.RESISTOR CH 1/16W 4.7K	1	
R33073	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R33074	ERJ3GEYJ153	M.RESISTOR CH 1/16W 15K	1	
R33075	ERJ3GEYJ333	M.RESISTOR CH 1/16W 33K	1	
R33076	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R33077	ERJ3GEYJ101	M.RESISTOR CH 1/16W 100	1	
R33078	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R33079,80	ERJ3GEYJ223	M.RESISTOR CH 1/16W 22K	2	
R33081	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R33082	ERJ3GEYJ153	M.RESISTOR CH 1/16W 15K	1	
R33083	ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	1	
R33085	ERJ3GEYJ224	M.RESISTOR CH 1/16W 220K	1	
R33086	ERJ3GEYG152	M.RESISTOR CH 1/16W 1.5K	1	
R33087	ERJ3GEYG102	M.RESISTOR CH 1/16W 1K	1	
R33088	ERJ3GEYJ271	M.RESISTOR CH 1/16W 270	1	
R33089	ERJ3GEYG102	M.RESISTOR CH 1/16W 1K	1	
R33090	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R33093	ERJ3GEYJ333	M.RESISTOR CH 1/16W 33K	1	
R33094	ERJ3GEYG332	M.RESISTOR CH 1/16W 3.3K	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
R33095	ERJ3GEYJ473	M.RESISTOR CH 1/16W 47K	1	
R33099,00	ERJ3GEYG102	M.RESISTOR CH 1/16W 1K	2	
R33101	ERJ3GEYJ221	M.RESISTOR CH 1/16W 220	1	
R33102	ERJ3GEYJ562	M.RESISTOR CH 1/16W 5.6K	1	
R33103	ERJ3GEYJ222	M.RESISTOR CH 1/16W 2.2K	1	
R33104	ERJ3GEYG332	M.RESISTOR CH 1/16W 3.3K	1	
R33105	ERJ3GEYJ221	M.RESISTOR CH 1/16W 220	1	
R33106	ERJ3GEYG102	M.RESISTOR CH 1/16W 1K	1	
R33107,08	ERJ3GEYJ104	M.RESISTOR CH 1/16W 100K	2	
R33109	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R33110	ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	1	
R33111	ERJ3GEYG472	M.RESISTOR CH 1/16W 4.7K	1	
R33114	ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	1	
R33115	ERJ3GEYJ101	M.RESISTOR CH 1/16W 100	1	
R33116	ERJ3GEYG471	M.RESISTOR CH 1/16W 470	1	
R33117	ERJ3GEYJ104	M.RESISTOR CH 1/16W 100K	1	
R33118,19	ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	2	
R33120	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R33121	ERJ3GEYJ473	M.RESISTOR CH 1/16W 47K	1	
R33123	ERJ3GEYJ473	M.RESISTOR CH 1/16W 47K	1	
R33124	ERJ3GEYJ104	M.RESISTOR CH 1/16W 100K	1	
R33126,27	ERJ3GEYJ473	M.RESISTOR CH 1/16W 47K	2	
R35101	ERJ3GEYG472	M.RESISTOR CH 1/16W 4.7K	1	
R35102	ERJ3GEYJ562	M.RESISTOR CH 1/16W 5.6K	1	
R35103	ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	1	
R35104	ERJ3GEYJ223	M.RESISTOR CH 1/16W 22K	1	
R35105	ERJ3GEYJ104	M.RESISTOR CH 1/16W 100K	1	
R35106	ERJ3GEYG123	M.RESISTOR CH 1/16W 12K	1	
R35107	ERJ3GEYJ124	M.RESISTOR CH 1/16W 120K	1	
R35108	ERJ3GEYG332	M.RESISTOR CH 1/16W 3.3K	1	
R35109	ERJ3GEYJ562	M.RESISTOR CH 1/16W 5.6K	1	
R35110	ERJ3GEYG124	M.RESISTOR CH 1/16W 120K	1	
VR30001-03	EVMEGSA00B23	V.RESISTOR 2K	3	
VR30004,05	EVMEGSA00B52	V.RESISTOR 500	2	
VR30006	EVMEGSA00B14	V.RESISTOR 10K	1	
VR30007	EVM7JGA00B24	V.RESISTOR 20K	1	
VR30008	EVM7JGA00B14	V.RESISTOR 10K	1	
VR30009	EVMEGSA00B24	V.RESISTOR 20K	1	
VR30010	EVMEGSA00B13	V.RESISTOR 1K	1	
VR30011	EVMEGSA00B14	V.RESISTOR 10K	1	
VR30012	EVM7JGA00B14	V.RESISTOR 10K	1	
VR35101	EVM7JGA00B24	V.RESISTOR 20K	1	
X30001	VSX0874	CRYSTAL OSCILLATOR	1	
ZA33001	VXA5920	Y/C SHIELD COVER UNIT	1	
ZA33002	VSC4255	Y/C SHIELD COVER (TOP)	1	
		MISCELLANEOUS		
	VWJ1063	FLAT CARD CABLE	2	P33001-P30002
				P33002-P30002
	VWJ1065	FLAT CARD CABLE	1	P33003-P30003
	XTV3+8J	SCREW	5	
■	VEP06B84A	VR C.B.A.		(RTL)
C6501,02	ECUM1H101JCN	C.CAPACITOR CH 50V 100P	2	
C6503,04	ECUM1H104ZFN	C.CAPACITOR CH 50V 0.1U	2	
C6505	ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	1	
C6506	ECUX1H223KBN	C.CAPACITOR CH 50V 0.022U	1	
C6507	ECUM1H104ZFN	C.CAPACITOR CH 50V 0.1U	1	
C6508	ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	1	
C6509	ECUX1H223KBN	C.CAPACITOR CH 50V 0.022U	1	
C6512	ECEA1CKA330	E.CAPACITOR 16V 33U	1	
C6513	ECEA1EKS3R3	E.CAPACITOR 25V 3.3U	1	
C6514	ECUM1H472KBN	C.CAPACITOR CH 50V 4700P	1	
C6515	ECEA1AKA330	E.CAPACITOR 10V 33U	1	
D6502,03	HLMF-D200	DIODE	2	
D6504	HLMF-D300	DIODE	1	
D6505	HLMF-D200	DIODE	1	
D6511	HLMF-D500	DIODE	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
IC6501	VCR0172	IC	1	
J4801	VJJ0329	JACK	1	
J4802	VJJ0308	JACK	1	
J4803	VJJ0242	JACK	1	
J6501	VEJ1341	JACK	1	
L6501. 02	VLQ0599J101	COIL 100UH	2	
L6503. 04	VLQ0599J221	COIL 220UH	2	
L6505. 06	VLQ0599J471	COIL 470UH	2	
LB4801	VLP0145	COIL	1	
P6501	VJS3405A009A	CONNECTOR (FEMALE) 9P	1	
P6502	VJS3673B023G	CONNECTOR (FEMALE) 23P	1	
P6503	VJS3537B011G	CONNECTOR (FEMALE) 11P	1	
PP6501. 02	VJP3042G005W	CONNECTOR (MALE) 5P	2	
PS4801. 02	VJS3042B005W	CONNECTOR (FEMALE) 5P	2	
QR6501	UN221F	TRANSISTOR-RESISTOR	1	
QR6502	UN211F	TRANSISTOR-RESISTOR	1	
QR6503	UN221F	TRANSISTOR-RESISTOR	1	
QR6504	MUN2211	TRANSISTOR-RESISTOR	1	
QR6505	UN2119	TRANSISTOR-RESISTOR	1	
QR6506. 07	UN221F	TRANSISTOR-RESISTOR	2	
R6501. 02	ERJ6GEYJ471	M. RESISTOR CH 1/10W 470	2	
R6503	ERJ6GEYG750	M. RESISTOR CH 1/10W 75	1	
R6504	ERJ6GEYG271	M. RESISTOR CH 1/10W 270	1	
R6505	ERJ6GEYJ471	M. RESISTOR CH 1/10W 470	1	
R6506	ERJ6GEYG750	M. RESISTOR CH 1/10W 75	1	
R6507	ERJ6GEY0R00	M. RESISTOR CH 1/10W 0	1	
R6508	ERJ6GEYG750	M. RESISTOR CH 1/10W 75	1	
R6509	ERJ6GEYG271	M. RESISTOR CH 1/10W 270	1	
R6510. 11	ERJ6GEYG222	M. RESISTOR CH 1/10W 2. 2K	2	
R6512	ERJ6GEYG562	M. RESISTOR CH 1/10W 5. 6K	1	
R6513	ERJ6GEY0R00	M. RESISTOR CH 1/10W 0	1	
R6514	ERJ6GEYG471	M. RESISTOR CH 1/10W 470	1	
R6515	ERJ6GEYG272	M. RESISTOR CH 1/10W 2. 7K	1	
R6516	ERJ6GEYG471	M. RESISTOR CH 1/10W 470	1	
R6517	ERJ6GEYG272	M. RESISTOR CH 1/10W 2. 7K	1	
R6518	ERJ6GEYG562	M. RESISTOR CH 1/10W 5. 6K	1	
S6501. 02	EVQ11G09K	SWITCH	2	
S6503	VSS0404	SWITCH	1	
S6504	VSS0407	SWITCH	1	
S6505. 06	VSS0404	SWITCH	2	
VR6502	EVJYM0F15C23	V. RESISTOR 2K	1	
VR6503. 04	EVJ021F1554J	V. RESISTOR	2	
ZB4801	VJF1076	JACK HOLDER	1	
ZB6501. 02	VMD0504	LED HOLDER	2	
ZB6503	VGU5986	SLIDE KNOB	1	
ZB6504. 05	VMD0504	LED HOLDER	2	
ZB6506	VGU6968	VR KNOB	1	
ZB6507	VMD0504	LED HOLDER	1	
ZB6508. 09	VGU6968	VR KNOB	2	
ZB6511	VGU5986	SLIDE KNOB	1	
ZB6513. 14	VGU5986	SLIDE KNOB	2	
■	VEP01804A	SUB POWER C. B. A.		(RTL)
C1201	ECEA0JKA470	E. CAPACITOR 6. 3V 47U	1	
C1202	ECEA1AKA470	E. CAPACITOR 10V 47U	1	
C1203	ECKF1H103ZF	C. CAPACITOR 50V 0. 01U	1	
C1204	ECEA1CKA100	E. CAPACITOR 16V 10U	1	
D1201	1SS254	DIODE	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
IC1201	SI-3033C	IC	1	
L1201	VLQ0599JR12T	COIL	1	
P1201	VJP1231T	CONNECTOR (MALE) 4P	1	
R1201	ERDS2TJ151	C. RESISTOR 1/4W 150	1	
R1202	ERDS2TJ682	C. RESISTOR 1/4W 6. 8K	1	
R1203	ERDS2TJ103	C. RESISTOR 1/4W 10K	1	
⚠ ■	VEP01639A	POWER C. B. A.		(RTL)
⚠ C1101-03	ECKMWS102MEF	C. CAPACITOR 1000P	3	
⚠ C1105, 06	ECQU2A154MVA	P. CAPACITOR 0. 15U	2	
C1107	ECEC2GG121HZ	E. CAPACITOR 400V 120U	1	
C1108	ECCZ3A121KGE	C. CAPACITOR 1KV 120	1	
C1109	ECKD2H103PU	C. CAPACITOR 500V 0. 01U	1	
C1110	ECA0GXLV331	E. CAPACITOR 4V 330U	1	
C1111	ECKF1H102KB	C. CAPACITOR 50V 1000P	1	
C1112	ECQB1H822JF	P. CAPACITOR 50V 8200P	1	
C1113	ECQE6104KF	P. CAPACITOR 630V 0. 1U	1	
C1114	ECA1VXLV470	E. CAPACITOR 35V 47U	1	
C1121	EEUFA1E272E	E. CAPACITOR 25V 2700U	1	
⚠ C1122	EEUFA1E102B	E. CAPACITOR 25V 1000U	1	
C1123	ECKD2H101KB	C. CAPACITOR 500V 100P	1	
C1124	EEUFA1A332E	E. CAPACITOR 10V 3300U	1	
C1125	EEUFA1A102B	E. CAPACITOR 10V 1000U	1	
C1126	ECKD2H101KB	C. CAPACITOR 500V 100P	1	
C1127	EEUFA1H820	E. CAPACITOR 50V 82U	1	
C1128	ECKF1H103ZF	C. CAPACITOR 50V 0. 01U	1	
C1129	ECKD2H101KB	C. CAPACITOR 500V 100P	1	
C1130	EEUFA1V151B	E. CAPACITOR 35V 150U	1	
C1131	ECKF1H103ZF	C. CAPACITOR 50V 0. 01U	1	
C1132	ECKD2H101KB	C. CAPACITOR 500V 100P	1	
C1133	EEUFA0J561B	E. CAPACITOR 6. 3V 560U	1	
C1134, 35	ECQB1H103JF	P. CAPACITOR 50V 0. 01U	2	
D1102	S1WBA60S	DIODE	1	
D1103	AP01C	DIODE	1	
D1104	MA178	DIODE	1	
D1105	MA700	DIODE	1	
D1106	MA4200-H	DIODE	1	
D1107	1SS254	DIODE	1	
D1108, 09	ERA15-08	DIODE	2	
D1110	RD100E	DIODE	1	
D1121	F5KF20B	DIODE	1	
D1122	F5KQ40	DIODE	1	
D1123	ERA22-02	DIODE	1	
D1124	MA185	DIODE	1	
D1125	11EQS04	DIODE	1	
D1126	MA4047-M	DIODE	1	
D1127	MA4043-L	DIODE	1	
IC1101	STRM6559LF	IC	1	
⚠ L1101, 02	ELF18D221F	COIL 220UH	2	
L1103, 04	VLP0083	COIL	2	
L1105	VLP0085	COIL	1	
L1106	VLP0083	COIL	1	
L1121, 22	VLQ0611K220	COIL 22UH	2	
L1123, 24	ELESE101KA	COIL 100UH	2	
⚠ P1101	VJS3306	AC INLET	1	
P1102	VJP3631A011W	CONNECTOR (MALE) 11P	1	
⚠ Q1101	PC120FY	TRANSISTOR	1	
QR1121	UN6213	TRANSISTOR-RESISTOR	1	
R1101	ERC12AGM334	S. RESISTOR 1/2W 330K	1	
R1102	ERG1SJ393	M. RESISTOR 1W 39K	1	
R1105	ERDS1TJ395	C. RESISTOR 1/2W 3. 9M	1	
R1106	ERDS1TJ475	C. RESISTOR 1/2W 4. 7M	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
R1107	ERDS2FJ224	C. RESISTOR 1/4W 220K	1	
R1108	ERDS2FJ101	C. RESISTOR 1/4W 100	1	
R1109	ERDS2FJ152	C. RESISTOR 1/4W 1. 5K	1	
R1110	ERDS2FJ103	C. RESISTOR 1/4W 10K	1	
R1111	ERDS2FJ561	C. RESISTOR 1/4W 560	1	
R1112	ERDS2FJ331	C. RESISTOR 1/4W 330	1	
R1113	ERX1SJR82	M. RESISTOR 1W 0. 82	1	
R1114	ERDS2FJ222	C. RESISTOR 1/4W 2. 2K	1	
R1115	ERDS2FJ100	C. RESISTOR 1/4W 10	1	
R1121	ERDS2TJ220	C. RESISTOR 1/4W 22	1	
R1122	ERDS2TJ221	C. RESISTOR 1/4W 220	1	
⚠ T1101	ETE28K100BY	TRANSFORMER	1	
⚠ ZA1101, 02	EYF52BC	FUSE HOLDER	2	
ZA1103	VSC4205	SHIELD COVER	1	
ZA1104, 05	VSC3434	SHIELD COVER	2	
ZA1106	VSC4259	SHIELD COVER	1	
ZA1109, 10	XTN3+8G	SCREW	2	
ZA1111	XTN3+10G	SCREW	1	
⚠ ZB1101, 02	VMZ2212	CAPACITOR COVER	2	
■	----------	MOTOR C. B. A.		
		MISCELLANEOUS		
	VJP3316B002	CONNECTOR (MALE) 2P	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks

INTERNAL REFERENCE CODES

NOTE : This chart is only for internal reference.
Do not order any parts according to these codes.

P. C. B.	FILM CODE
MAIN	HOAI00-06B83
POWER	HOAI00-01639
DIGITAL LUMI. & CHRO.	HOAI00-03D75
SYUUGOU (ANALOGUE LUMI. & CHRO. / AFC PACK)	HOAI00-0405A
SYUUGOU (SUB POWER / TIMER / VR / FRONT JACK)	HOAI00-0392A
HI-FI	HOAI00-04664
INPUT / OUTPUT	HOAI00-03D77
HEAD AMP	HOAI04-05176
TV DEMODULATOR	HOAI00-07801
DECODER	HOAI01-07784

Order No. VRD9707018S2

Service Manual

Supplement

Video Product

Effective from : Mentioned Below

Model No.Mentioned Below

Subject : Mentioned Below

Please use this service manual together with the service manual for Order No.Mentioned Below

No.	Model No.	Order No.	Subject
1	NV-HD600EG	VRD9505M114	Change of Cylinder Unit V12159
	NV-HD600EC/B/BI	VRD9506M116	V14060
	NV-HD600EGH	VRD9512M159	—
	NV-HD610EG/EGH/EC/B	VRD9604M112	V13411
	NV-HD605B/BL	VRD9604M112	V13411
	NV-HD600A/EA/BD	VRD9507M129	—
	NV-HD600MK2A,HD650MK2A	VRD9608M123	—
	NV-HD600EE	VRD9506M118	—
	NV-HD600EEM	VRD9606M122	—
	NV-HD650A/EA	VRD9511M151	—
	NV-HD650AM/BD,HD655AM	VRD9511M153	V15531
	NV-HD750AM,HD755AM	VRD9511M155	V15000
2	NV-HD620EG/EGH/EC/B/BL	VRD9704005C2	Correction of Electrical Adjustment V13460
	NV-HD620EGM/ECN	VRD9706006C2	V13592
3	NV-HS950EG	VRD9706009C2	Change of AC Cord V19033✓ X
4	NV-HD620EG/EGH/EC	VRD9704005C2	✓Addition of Ferrite Core
	NV-HD620EGM/ECN	VRD9706006C2	✓
	NV-HD625EG/EGH/EGM/EC	VRD9706007C2	V18033
	NV-HD620F	VRD9706012C2	V19030
	NV-HS950EG	VRD9706009C2	V19033✓X
5	NV-HD660B	VRD9608M120	Addition of 21pin Skirt Cable

V16975

⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

Panasonic

© 1997 Matsushita Electric Industrial Co., LTd.
All rights reserved. Unauthorized copying and distribution is a violation of law.

Printed in Japan

1. Model No.:NV-HD600EG/EGH/EC/B/BI/A/EA/BD/MK2A/EE/EEM,HD610EG/EGH/EC/B,HD605B/BI,
NV-HD650A/EA/MK2A/AM/BD/,NV-HD655AM,HD750AM,HD755AM

Subject :Change of Cylinder Unit

Effective from:Running Change

INTERCHANGEABILITY CODE See the I/C column on the following Part Number List

	Parts	Production		Parts	Production		Parts	Production		Parts	Production		
A	Original	Early	B	Original	Early	C	Original	Early	D	Original	Early	E	Addition
	New	Late		New	Late		New	Late		New	Late	F	Deletion
												G	Other

Parts Number List

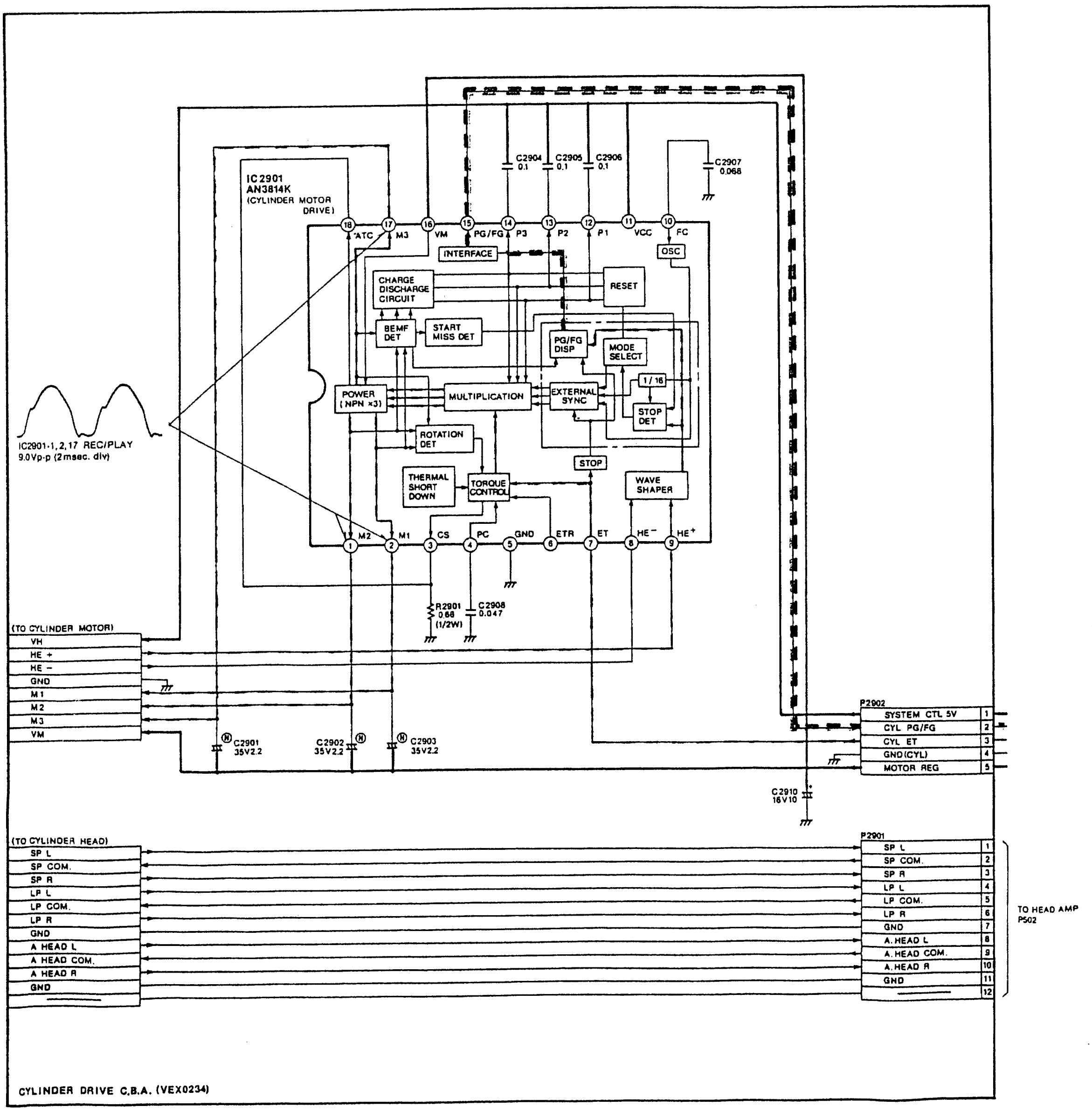
Ref No.	Original Part No.	New Part No.	Part Name & Description	I/C	Remarks
	VEX0129	VEX0234	CYLINDER DRIVE C.B.A.	B	(RTL)
70(1)	VEG1177	VEG1344	CYLINDER UNIT	B	
71(1)	VXP1515	VXP1742	UPPER CYLINDER UNIT	B	
72(1)	VSC4137	VSC4474	CYLINDER SHIELD PLATE	B	

Note:Interchangeability

1.The upper cylinder unit VXP1515 can be only mounted on cylinder unit VEG1177.

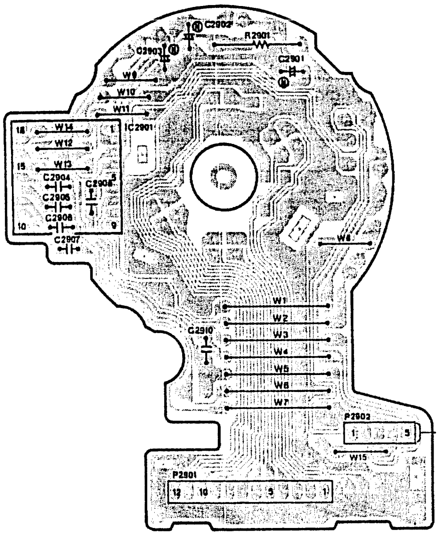
2.The upper cylinder unit VXP1742 can be mounted on both cylinder units VEG1177 and VEG1344.

	VEG1177	VEG1344
VXP1515	○	×
VXP1742	○	○


IC2901-1, 2, 17 REC/PLAY
9.0Vp-p (2msec. div)
IC2901
AN3814K
(CYLINDER MOTOR DRIVE)
18 ATC
17 M3
16 VM
15 PG/FG
14 P3
13 P2
12 P1
11 VCC
10 FC
C2904 0.1
C2905 0.1
C2906 0.1
C2907 0.068
INTERFACE
OSC
CHARGE DISCHARGE CIRCUIT
RESET
BEMF DET
START MISS DET
PG/FG DISP
MODE SELECT
1/16
POWER (NPN ×3)
MULTIPLICATION
EXTERNAL SYNC
STOP DET
ROTATION DET
STOP
THERMAL SHORT DOWN
TORQUE CONTROL
WAVE SHAPER
1 M2
2 M1
3 CS
4 PC
5 GND
6 ETR
7 ET
8 HE⁻
9 HE⁺
R2901 0.68 (1/2W)
C2908 0.047
(TO CYLINDER MOTOR)
VH
HE +
HE −
GND
M1
M2
M3
VM
C2901 35V2.2
C2902 35V2.2
C2903 35V2.2
P2902
SYSTEM CTL 5V 1
CYL PG/FG 2
CYL ET 3
GND(CYL) 4
MOTOR REG 5
C2910 16V10
(TO CYLINDER HEAD)
SP L
SP COM.
SP R
LP L
LP COM.
LP R
GND
A HEAD L
A HEAD COM.
A HEAD R
GND
P2901
SP L 1
SP COM. 2
SP R 3
LP L 4
LP COM. 5
LP R 6
GND 7
A.HEAD L 8
A.HEAD COM. 9
A.HEAD R 10
GND 11
12
TO HEAD AMP P502
CYLINDER DRIVE C.B.A. (VEX0234)

9707098$2

CYLINDER DRIVE C.B.A. (VEX0234)



Parts List

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
	■	VEX0234	CYLINDER DRIVE C.B.A.		(RTL)
C2901-03		ECEA1VSN2R2	E.CAPACITOR 35V 2.2U	3	
C2904-06		ECUM1E104KBM	C.CAPACITOR CH 25V 0.1U	3	
C2907		ECUM1E683KBM	C.CAPACITOR CH 25V 0.068U	1	
C2908		ECUM1E473KBM	C.CAPACITOR CH 25V 0.047U	1	
C2910		ECEA1CKS100	E.CAPACITOR 16V 10U	1	
IC2901		AN3814K	IC	1	
P2901		VJP2603W	CONNECTOR (MALE)	1	
P2902		VJP1232T	CONNECTOR (MALE) 5P	1	
R2901		ERX12SJR68	M.RESISTOR CH 1/2W 0.68	1	
			MISCELLANEOUS		
		VMA9138	MAIN HOLDER	1	

2. Model No.:NV-HD620EG/EGH/EGM/EC/ECN/B/BL
Subject :Correction of Electrical Adjustment
Effective from:First Production

ITEM	TP	SPEC.	REMARKS
VIDEO FREQUENCY RESPONSE ADJUSTMENT	VIDEO OUT	SP:0+-1(dB)(90-110%) LP:0+-1(dB)(90-110%) (See Fig.E5)	1.Set the Video Sweep Signal. (See Fig.E4) ~~2.Set the CVC SW to OFF position.~~ DELETION
AI FUNCTION ADJUSTMENT	TW3035	~~2.5+-0.3(V)~~ ↓ 1.6+-0.3(V)	
BIAS CURRENT ADJUSTMENT	TW4002(HOT) TW4003(COLD)	~~2.5+-0.1(mVrms)~~ ↓ 2.8+-0.1(mVrms)	1.Connect the Audio Input and GND.

3. Model No.:NV-HS950EG
Subject :Change of AC Cord
Effective from:F7.....

INTERCHANGEABILITY CODE See the I/C column on the following Part Number List

	Parts	Production		Parts	Production		Parts	Production		Parts	Production	E	Addition
A	Original	Early	B	Original	Early	C	Original	Early	D	Original	Early	F	Deletion
	New	Late		New	Late		New	Late		New	Late	G	Other

Parts Number List

Ref No.	Original Part No.	New Part No.	Part Name & Description	I/C	Remarks
307(4)	VJA0664	VJA0665	AC CORD	A	

4. Model No.:NV-HD620EG/EGH/EGM/EC/ECN/F,NV-HD625EG/EGH/EGM/EC,NV-HS950EG
Subject :Addition of Ferrite Core
Effective from:F7.....

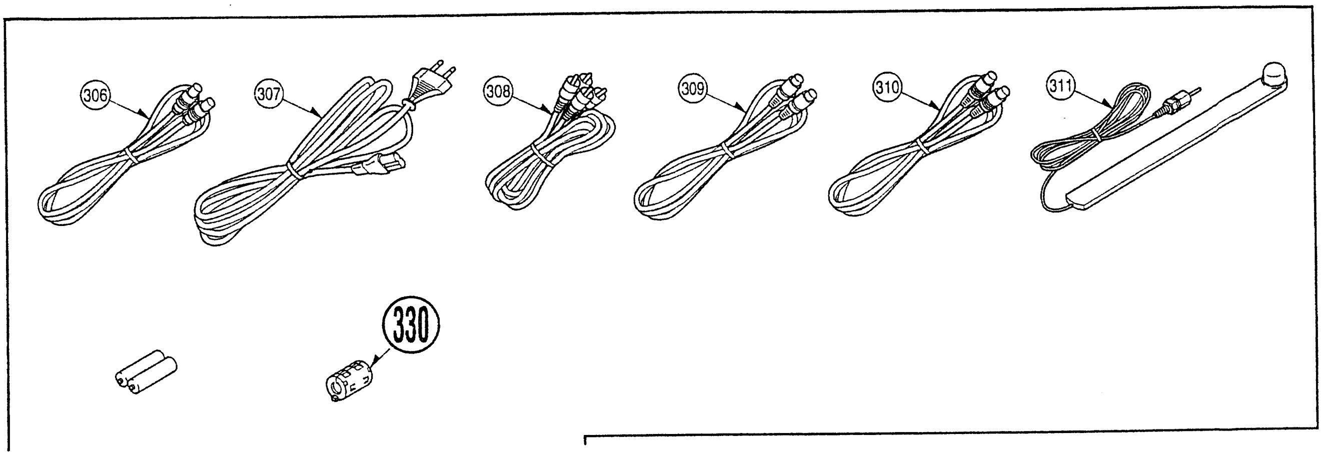
INTERCHANGEABILITY CODE See the I/C column on the following Part Number List

	Parts	Production		Parts	Production		Parts	Production		Parts	Production	E	Addition
A	Original	Early	B	Original	Early	C	Original	Early	D	Original	Early	F	Deletion
	New	Late		New	Late		New	Late		New	Late	G	Other

Parts Number List

Ref No.	Original Part No.	New Part No.	Part Name & Description	I/C	Remarks
330(4)	------------------	VLF1321	FERRITE CORE	E	

❹ PACKING PARTS SECTION



5. Model No.:NV-HD660B
Subject :Addition of 21pin Skirt Cable
Effective from:D7.....

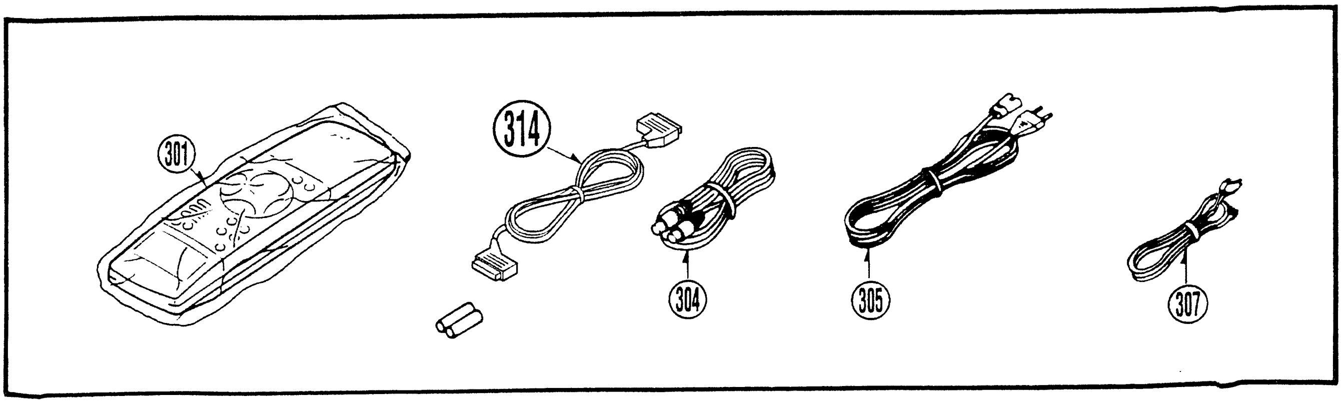
INTERCHANGEABILITY CODE See the I/C column on the following Part Number List

	Parts	Production		Parts	Production		Parts	Production		Parts	Production	E	Addition
A	Original	Early	B	Original	Early	C	Original	Early	D	Original	Early	F	Deletion
	New	Late		New	Late		New	Late		New	Late	G	Other

Parts Number List

Ref No.	Original Part No.	New Part No.	Part Name & Description	I/C	Remarks
314(4)	------------------	VJA1036	21PIN SKIRT CABLE	E	[SUPPLIED FROM MBV]
310(4)	VPK0825	VPK0834	ACCESSORY BOX	B	

❹ PACKING PARTS SECTION



Order No. VRD9709032S2

Service Manual

Supplement

190 33√
19222

Effective from : Mentioned Below

Video Product

Model No. Mentioned Below

Subject : Correction of Parts List / Addition of Parts, etc.

Please use this service manual together with the service manual for Order No. and Model No. Mentioned Below

MODEL	ORDER NO.
NV-HS950EG	VRD9706009C2
NV-HS950B/EC	VRD9707017C2

1. Correction of Parts List
   Effective from : First Production

INTERCHANGEABILITY CODE See the I/C column on the following Part Number List

A	Parts	Production	B	Parts	Production	C	Parts	Production	D	Parts	Production	E	Addition
	Original	Early		Original	Early		Original	Early		Original	Early	F	Deletion
	New	Late		New	Late		New	Late		New	Late	G	Other

Parts Number List

Ref No.	Original Part No.	New Part No.	Part Name & Description	I/C	Remarks
IC33001	ST24W01FM6TR	ST24W01-950	IC	G	

2. Addition of Parts
   Effective from : G7M... (July '97 Production)

INTERCHANGEABILITY CODE See the I/C column on the following Part Number List

A	Parts	Production	B	Parts	Production	C	Parts	Production	D	Parts	Production	E	Addition
	Original	Early		Original	Early		Original	Early		Original	Early	F	Deletion
	New	Late		New	Late		New	Late		New	Late	G	Other

Parts Number List

Ref No.	Original Part No.	New Part No.	Part Name & Description	I/C	Remarks
IC33013	————	TC7S00FU	IC	E	NV-HS950EG
IC33014	————	TC7S02FU	IC	E	NV-HS950EG
IC33015	————	TC7S32FU	IC	E	NV-HS950EG

NOTE : Depend on the addition of above parts, digital C.B.A. has been changed as follows.

⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

Panasonic

© 1997 Matsushita Electric Industrial Co., LTd.
All rights reserved. Unauthorized copying and distribution is a violation of law.

Printed in Japan

3.Improvement of Performance
Effective from : J7M... (October '97 Production)

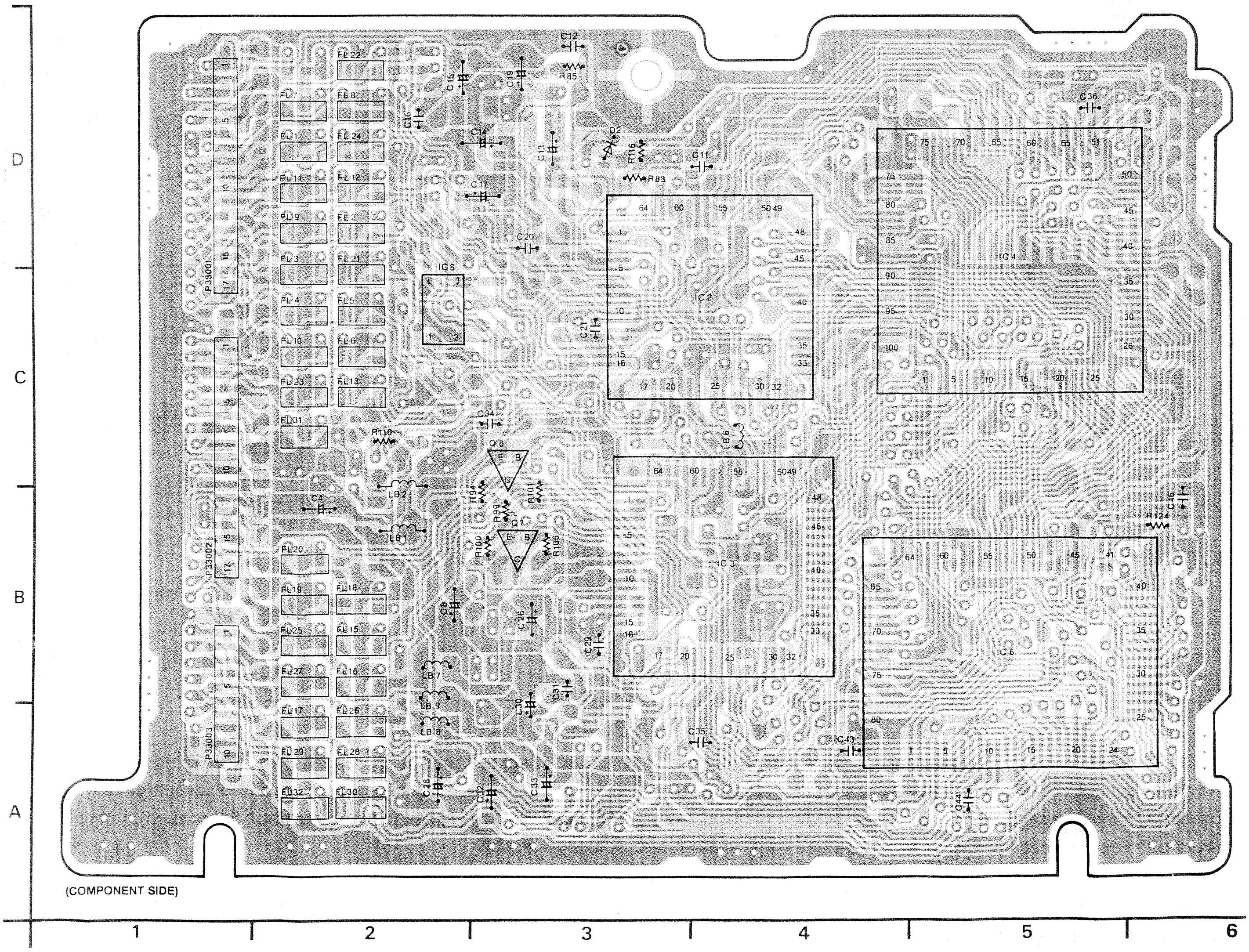
INTERCHANGEABILITY CODE See the I/C column on the following Part Number List

	Parts	Production		Parts	Production		Parts	Production		Parts	Production		
A	Original	Early	B	Original	Early	C	Original	Early	D	Original	Early	E	Addition
	New	Late		New	Late		New	Late		New	Late	F	Deletion
												G	Other

Parts Number List

Ref No.	Original Part No.	New Part No.	Part Name & Description	I/C	Remarks
IC33006	F432536PH	F432536BPH	IC	B	
QR33008	UN5211	————	TRANSISTOR-RESISTOR	F	
QR33012	UN5213	————	TRANSISTOR-RESISTOR	F	
D33003	MA745	————	DIODE	F	
C33055	ECUX1H331JCV	————	CAPACITOR	F	
R33118	ERJ3GEYJ103	————	RESISTOR	F	

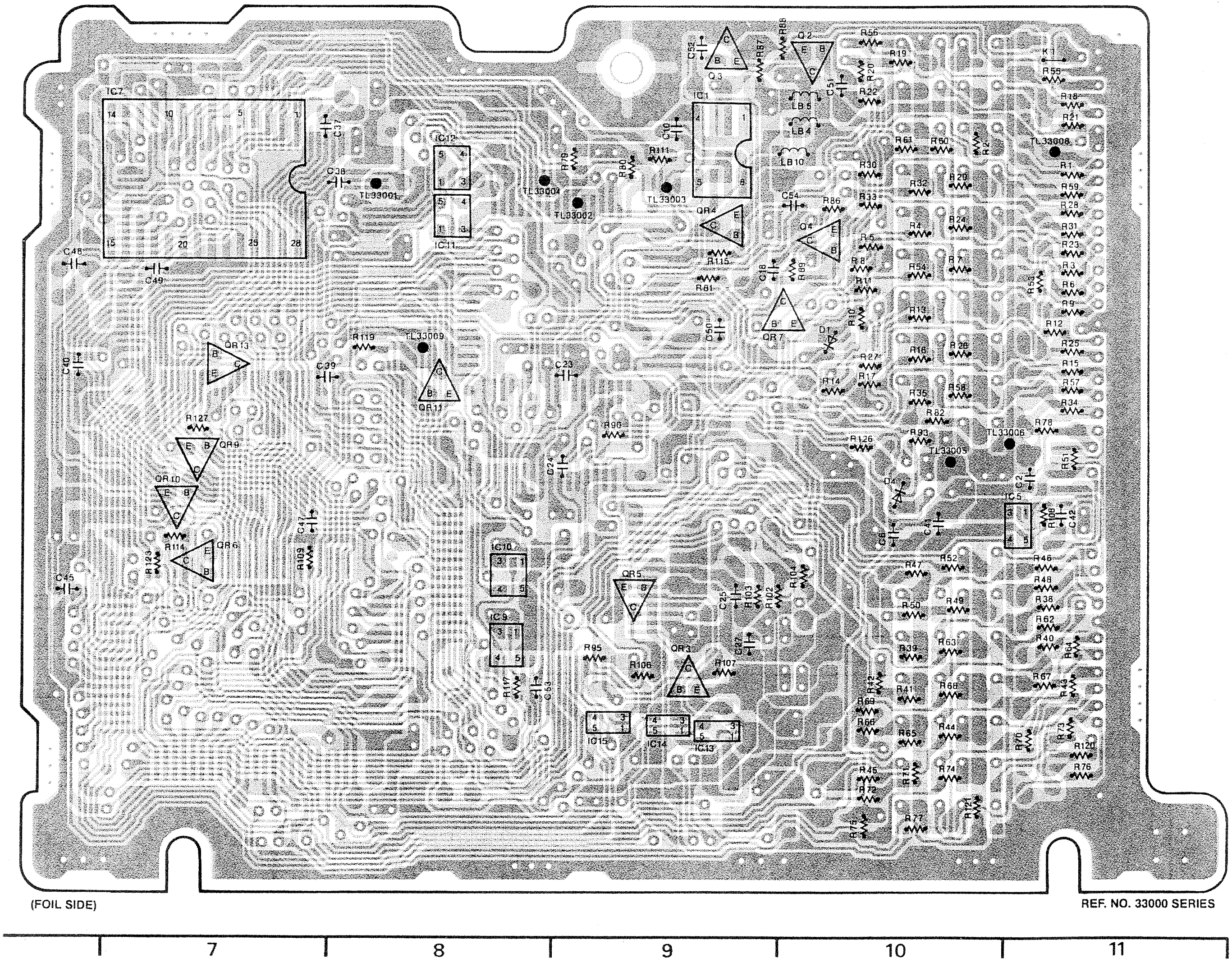
DIGITAL LUMINANCE & CHROMINANCE C.B.A. (VEP03D75A: NV-HS950EG) [REF. NO. 33000 SERIES]



9709032 #2

DIGITAL LUMINANCE & CHROMINANCE C.B.A.							
Transistor		QR33007	C-9	IC33007	D-7	TL33003	D-9
Q33002	D-10	QR33009	C-7	IC33008	C-2	TL33004	D-8
Q33003	D-9	QR33010	B-7	IC33009	B-8	TL33008	D-11
Q33004	D-10	QR33011	C-8	IC33010	B-8	TL33009	C-8
Q33006	C-3	QR33013	C-7	IC33011	D-8	**Connector**	
Q33007	B-3	**Integrated Circuit**		IC33012	D-8	P33001	C-1
Transistor & Resistor		IC33001	D-9	IC33013	A-9	P33002	B-1
QR33003	B-9	IC33002	C-4	IC33014	A-9	P33003	A-1
QR33004	D-9	IC33003	B-4	IC33015	A-9		
QR33005	B-9	IC33004	D-5	**Test Point**			
QR33006	B-7	IC33005	B-11	TL33001	D-8		
		IC33006	B-5	TL33002	D-9		

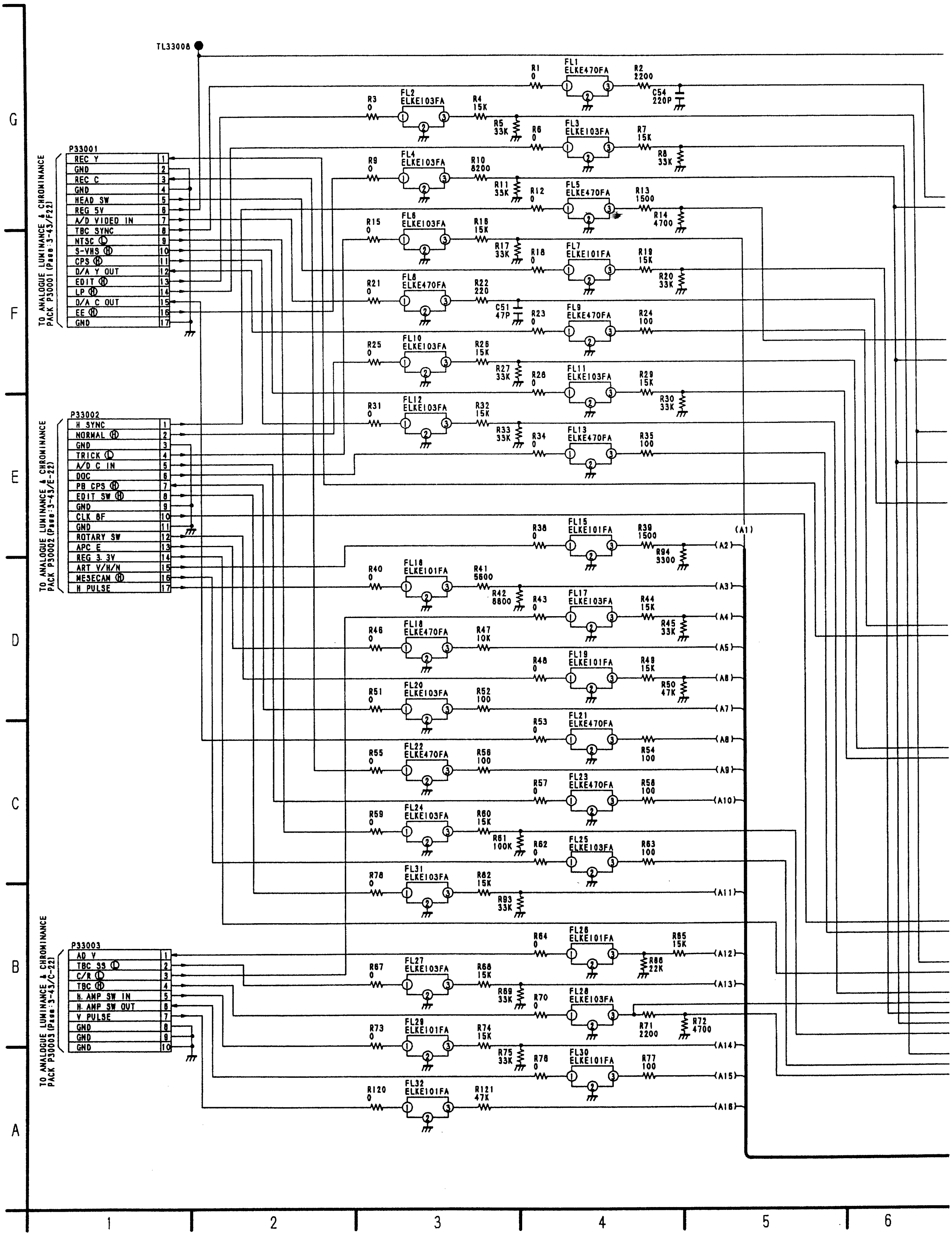
ADDRESS INFORMATION


IC7
IC12
IC11
IC1
IC10
IC9
IC15
IC14
IC13
IC5
TL33001
TL33004
TL33002
TL33003
TL33009
TL33008
TL33006
TL33005
Q2
Q3
Q4
QR4
QR7
QR13
QR11
QR9
QR10
QR6
QR5
QR1
LB5
LB4
LB10
D1
D4
K1
C37
C38
C48
C49
C40
C39
C23
C24
C47
C45
C53
C25
C27
C52
C10
C51
C54
C18
C50
C6
C41
C2
C42
R79
R80
R111
R115
R81
R119
R127
R114
R123
R109
R90
R95
R106
R107
R117
R103
R102
R104
R87
R88
R56
R19
R20
R22
R55
R18
R21
R61
R60
R30
R32
R29
R33
R86
R4
R24
R5
R8
R54
R7
R11
R10
R13
R27
R16
R26
R14
R17
R35
R58
R82
R93
R126
R1
R59
R28
R31
R23
R3
R53
R6
R9
R12
R25
R15
R57
R34
R78
R51
R108
R47
R52
R46
R48
R50
R49
R36
R62
R63
R39
R40
R64
R41
R68
R67
R43
R42
R69
R66
R65
R44
R70
R73
R120
R45
R72
R71
R74
R76
R75
R77
R121
7
8
9
10
11

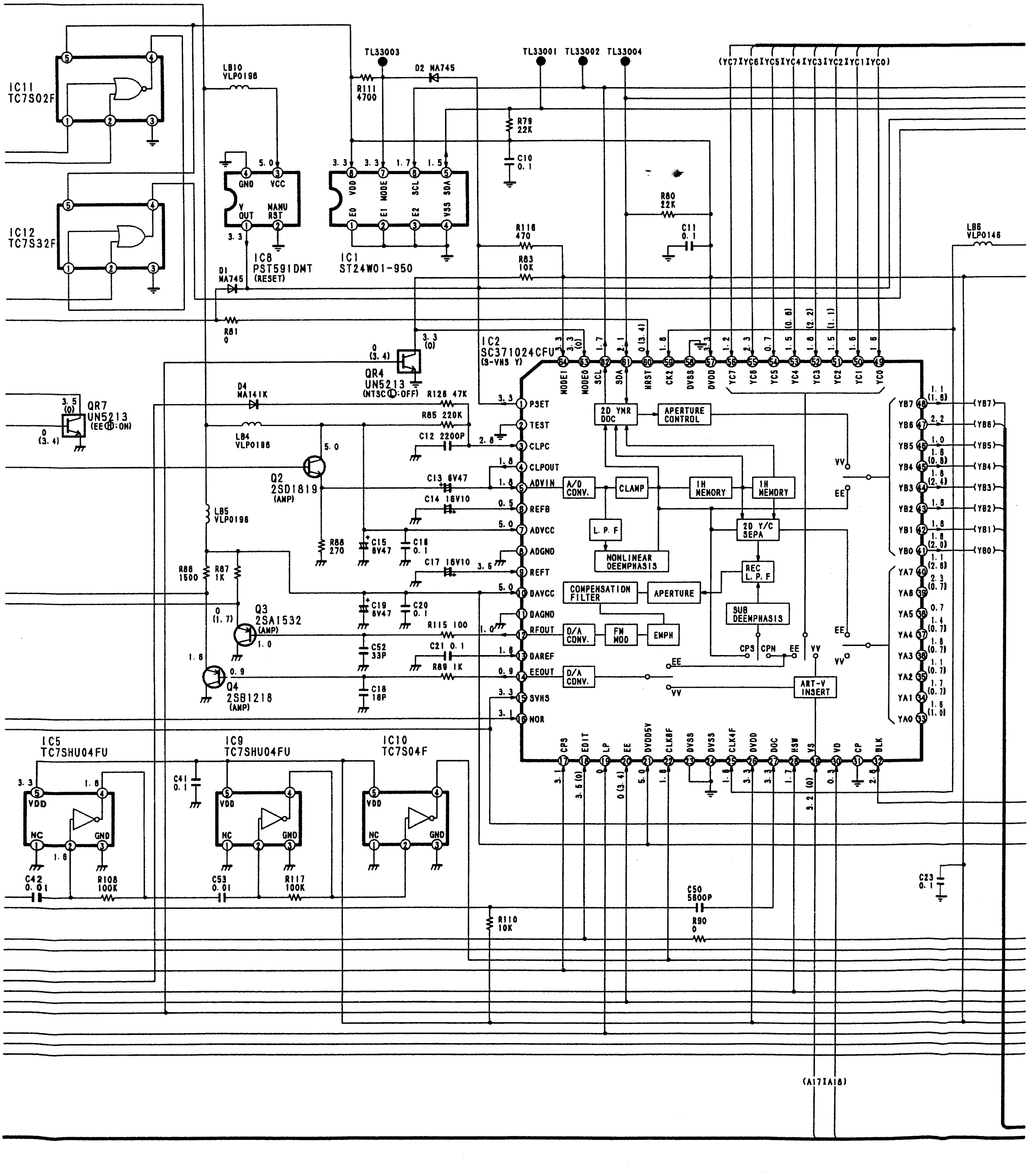
(FOIL SIDE)

REF. NO. 33000 SERIES

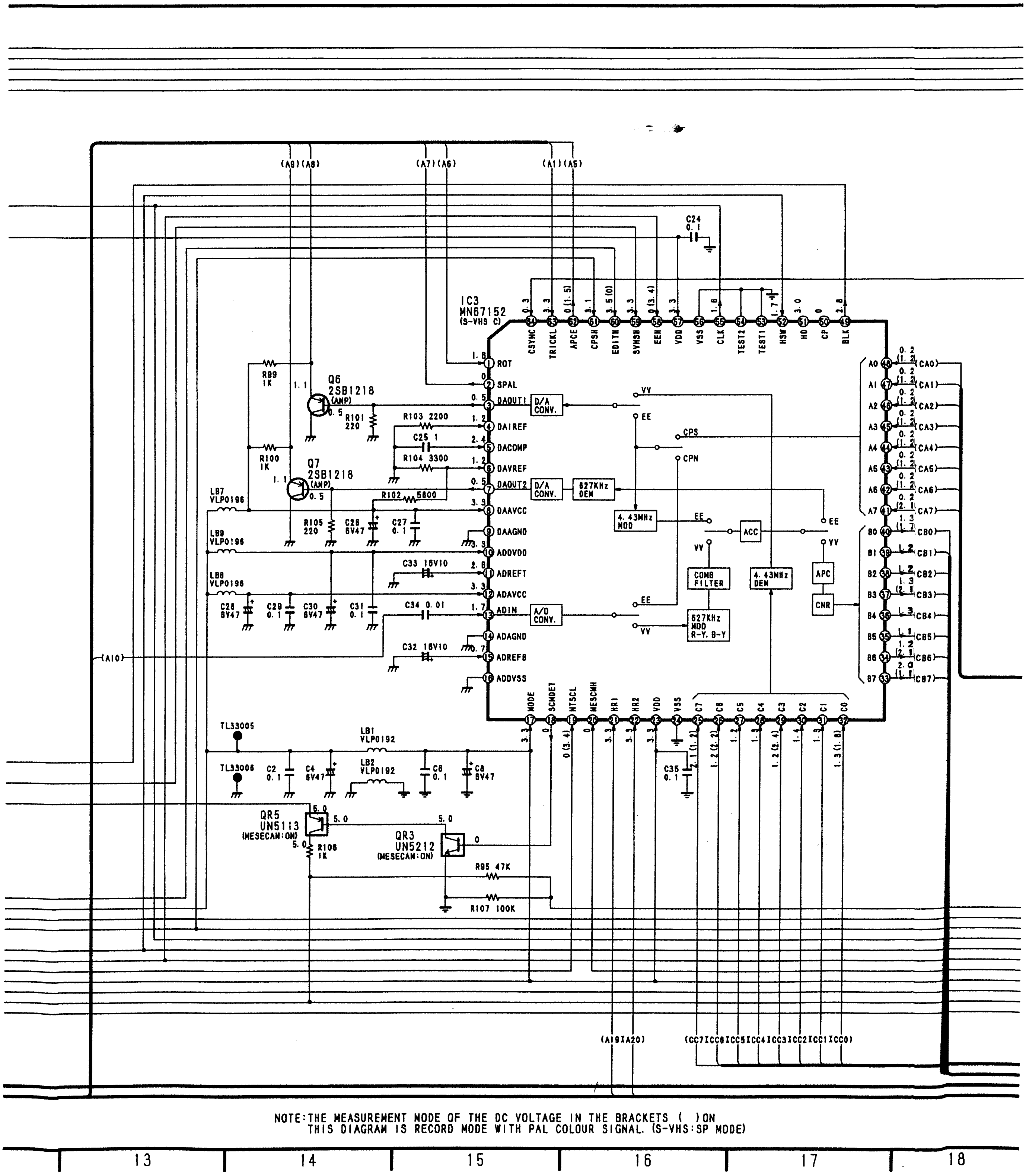
DIGITAL LUMINANCE & CHROMINANCE SCHEMATIC DIAGRAM (NV-HS950EG) [REF. NO. 33000 SERIES]


TL33008
P33001
REC Y
GND
REC C
GND
HEAD SW
REG 5V
A/D VIDEO IN
TBC SYNC
NTSC Ⓛ
S-VHS Ⓗ
CPS Ⓗ
D/A Y OUT
EDIT Ⓗ
LP Ⓗ
D/A C OUT
EE Ⓗ
GND
TO ANALOGUE LUMINANCE & CHROMINANCE PACK P30001 (Page:3-43/F22)
P33002
H SYNC
NORMAL Ⓗ
GND
TRICK Ⓛ
A/D C IN
DOC
PB CPS Ⓗ
EDIT SW Ⓗ
GND
CLK 8F
GND
ROTARY SW
APC E
REG 3.3V
ART V/H/N
MESECAM Ⓗ
H PULSE
TO ANALOGUE LUMINANCE & CHROMINANCE PACK P30002 (Page:3-43/E-22)
P33003
AD V
TBC SS Ⓛ
C/R Ⓛ
TBC Ⓗ
H. AMP SW IN
H. AMP SW OUT
V PULSE
GND
GND
GND
TO ANALOGUE LUMINANCE & CHROMINANCE PACK P30003 (Page:3-43/C-22)
R1 0
FL1 ELKE470FA
R2 2200
C54 220P
R3 0
FL2 ELKE103FA
R4 15K
R5 33K
R6 0
FL3 ELKE103FA
R7 15K
R8 33K
R9 0
FL4 ELKE103FA
R10 8200
R11 33K
R12 0
FL5 ELKE470FA
R13 1500
R14 4700
R15 0
FL6 ELKE103FA
R16 15K
R17 33K
R18 0
FL7 ELKE101FA
R19 15K
R20 33K
R21 0
FL8 ELKE470FA
R22 220
C51 47P
R23 0
FL9 ELKE470FA
R24 100
R25 0
FL10 ELKE103FA
R26 15K
R27 33K
R28 0
FL11 ELKE103FA
R29 15K
R30 33K
R31 0
FL12 ELKE103FA
R32 15K
R33 33K
R34 0
FL13 ELKE470FA
R35 100
R38 0
FL15 ELKE101FA
R39 1500
R94 3300
(A1)
(A2)
R40 0
FL16 ELKE101FA
R41 5600
R42 6800
(A3)
R43 0
FL17 ELKE103FA
R44 15K
R45 33K
(A4)
R46 0
FL18 ELKE470FA
R47 10K
(A5)
R48 0
FL19 ELKE101FA
R49 15K
R50 47K
(A6)
R51 0
FL20 ELKE103FA
R52 100
(A7)
R53 0
FL21 ELKE470FA
R54 100
(A8)
R55 0
FL22 ELKE470FA
R56 100
(A9)
R57 0
FL23 ELKE470FA
R58 100
(A10)
R59 0
FL24 ELKE103FA
R60 15K
R61 100K
R62 0
FL25 ELKE103FA
R63 100
R78 0
FL31 ELKE103FA
R82 15K
R93 33K
(A11)
R64 0
FL26 ELKE101FA
R65 15K
R66 22K
(A12)
R67 0
FL27 ELKE103FA
R68 15K
R69 33K
(A13)
R70 0
FL28 ELKE103FA
R71 2200
R72 4700
R73 0
FL29 ELKE101FA
R74 15K
R75 33K
(A14)
R76 0
FL30 ELKE101FA
R77 100
(A15)
R120 0
FL32 ELKE101FA
R121 47K
(A16)
G
F
E
D
C
B
A
1
2
3
4
5
6

9709032 ꟗ2

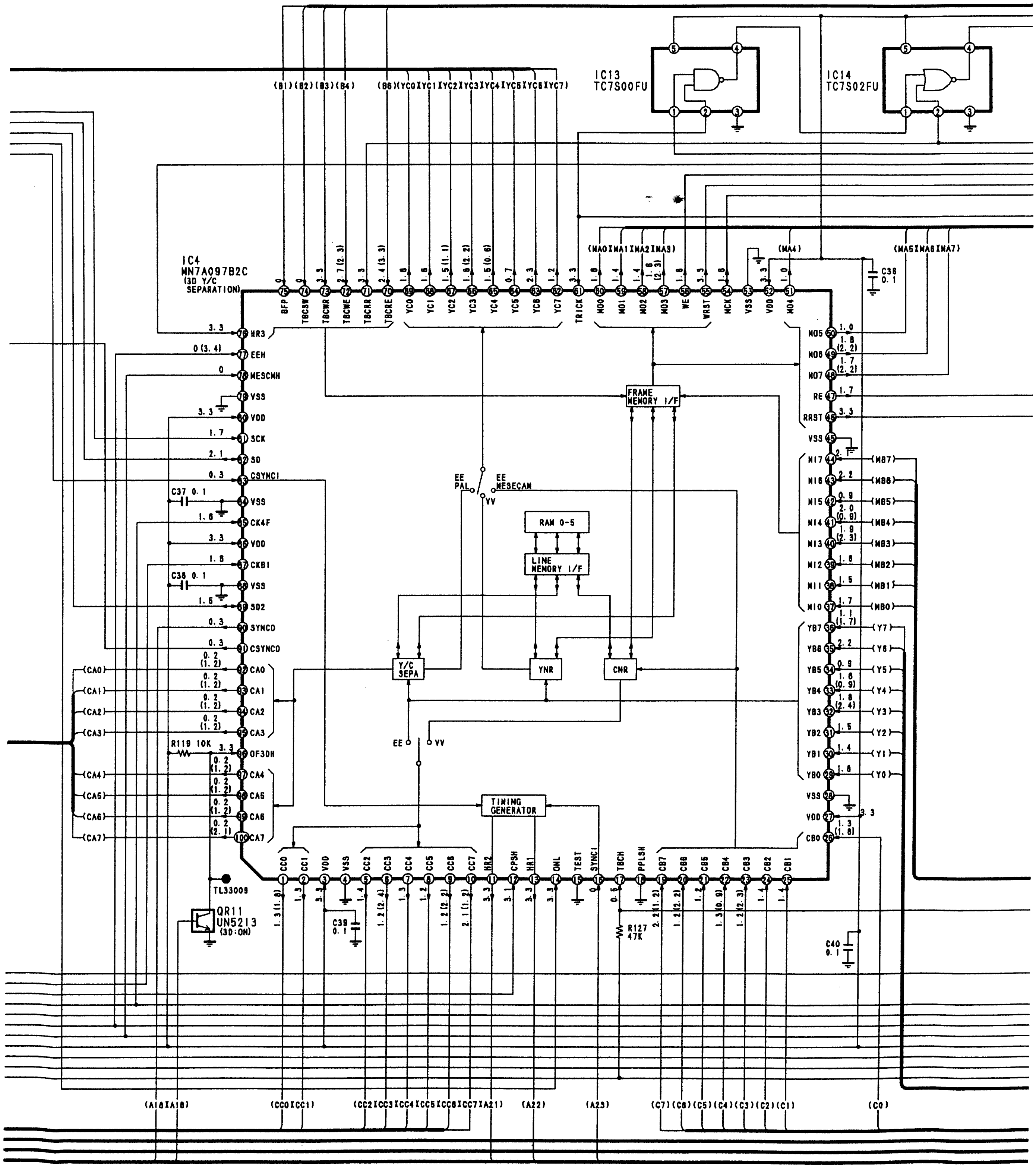

IC11 TC7S02F
IC12 TC7S32F
LB10 VLP0198
IC8 PST591DMT (RESET)
D1 MA745
R81 0
TL33003
R111 4700
D2 MA745
IC1 ST24W01-950
TL33001 TL33002 TL33004
R79 22K
C10 0.1
R80 22K
C11 0.1
R116 470
R83 10K
(YC7)(YC6)(YC5)(YC4)(YC3)(YC2)(YC1)(YC0)
LB6 VLP0146
IC2 SC371024CFU (S-VHS Y)
QR4 UN5213 (NTSC Ⓛ:OFF)
QR7 UN5213 (EE Ⓗ:ON)
D4 MA141K
R126 47K
R85 220K
LB4 VLP0198
C12 2200P
Q2 2SD1819 (AMP)
C13 6V47
C14 16V10
LB5 VLP0198
R88 270
C15 6V47
C16 0.1
C17 16V10
R86 1500
R87 1K
Q3 2SA1532 (AMP)
C19 6V47
C20 0.1
R115 100
C52 33P
C21 0.1
R89 1K
Q4 2SB1218 (AMP)
C18 18P
PSET
TEST
CLPC
CLPOUT
ADVIN
REFB
ADVCC
ADGND
REFT
DAVCC
DAGND
RFOUT
DAREF
EEOUT
SVHS
NOR
MODE1 MODE0 SCL SDA HRST CK2 DVSS DVDD YC7 YC6 YC5 YC4 YC3 YC2 YC1 YC0
2D YNR DOC
APERTURE CONTROL
A/D CONV.
CLAMP
1H MEMORY
1H MEMORY
L.P.F
NONLINEAR DEEMPHASIS
2D Y/C SEPA
REC L.P.F
COMPENSATION FILTER
APERTURE
SUB DEEMPHASIS
D/A CONV.
FM MOD
EMPH
D/A CONV.
ART-V INSERT
CPS CPN EE VV
YB7 YB6 YB5 YB4 YB3 YB2 YB1 YB0
YA7 YA6 YA5 YA4 YA3 YA2 YA1 YA0
CPS EDIT LP EE DVDD5V CLK8F DVSS DVSS CLK4F DVDD DOC HSW VS VD CP BLK
IC5 TC7SHU04FU
IC9 TC7SHU04FU
IC10 TC7S04F
C41 0.1
C42 0.01
R108 100K
C53 0.01
R117 100K
C50 5600P
R90 0
R110 10K
C23 0.1
(A17)(A18)

7	8	9	10	11	12



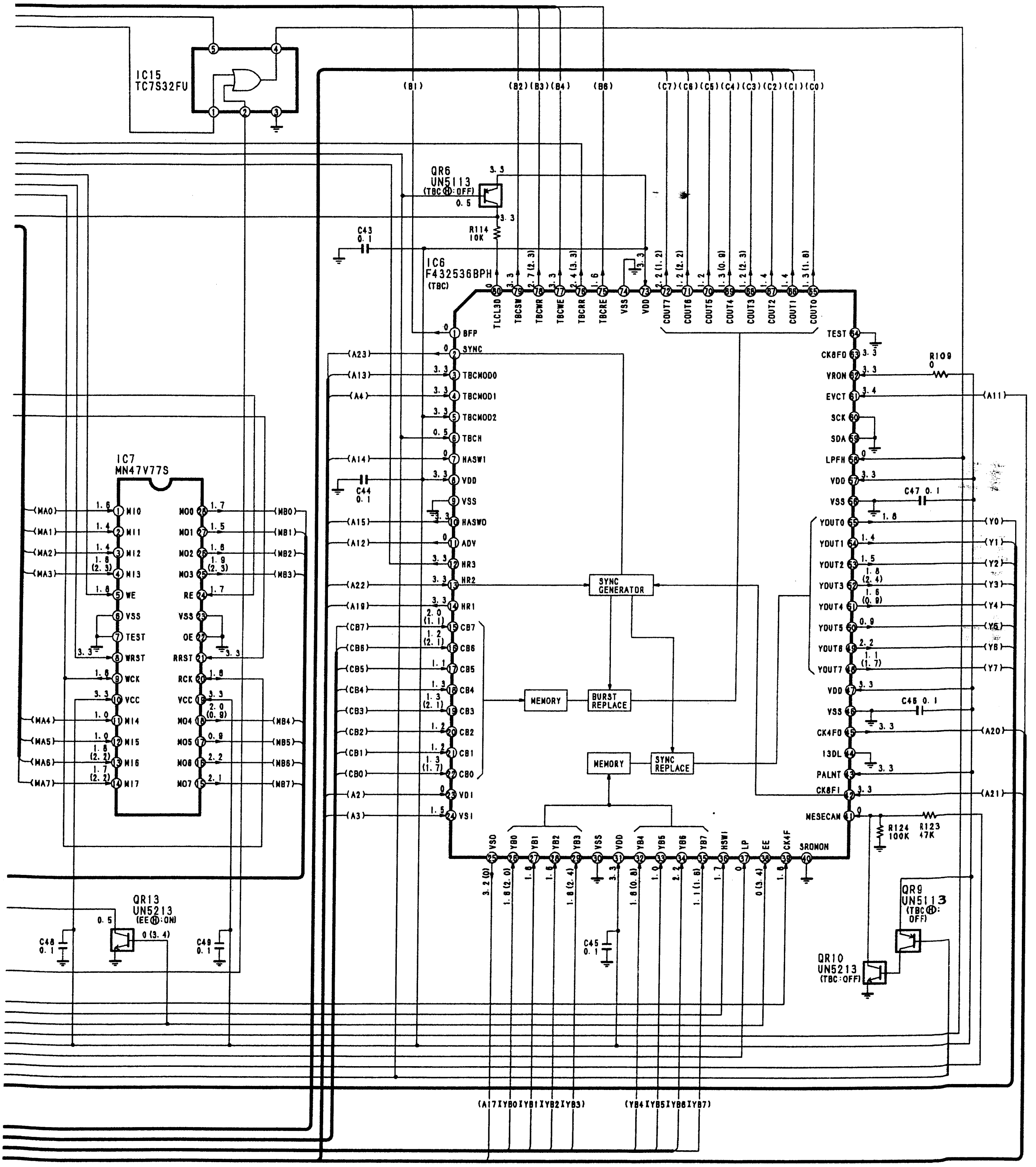
IC3
MN67152
(S-VHS C)
(A9)(A8)
(A7)(A6)
(A1)(A5)
C24
0.1
CSYNC
TRICKL
APCE
CPSH
EDITH
SVHSH
EEH
VDD
VSS
CLK
TEST2
TEST1
HSW
HD
CP
BLK
ROT
SPAL
DAOUT1
DAIREF
DACOMP
DAVREF
DAOUT2
DAAVCC
DAAGND
ADDVDD
ADREFT
ADAVCC
ADIN
ADAGND
ADREFB
ADDVSS
MODE
SCMDET
NTSCL
MESCMH
HR1
HR2
VDD
VSS
C7
C6
C5
C4
C3
C2
C1
C0
A0 A1 A2 A3 A4 A5 A6 A7
B0 B1 B2 B3 B4 B5 B6 B7
(CA0) (CA1) (CA2) (CA3) (CA4) (CA5) (CA6) (CA7)
(CB0) (CB1) (CB2) (CB3) (CB4) (CB5) (CB6) (CB7)
D/A CONV.
D/A CONV.
627KHz DEM
A/D CONV.
4.43MHz MOD
ACC
COMB FILTER
4.43MHz DEM
627KHz MOD R-Y, B-Y
APC
CNR
VV
EE
CPS
CPN
Q6
2SB1218
(AMP)
Q7
2SB1218
(AMP)
R99 1K
R100 1K
R101 220
R103 2200
C25 1
R104 3300
R102 5600
R105 220
C26 6V47
C27 0.1
C33 16V10
C34 0.01
C32 16V10
LB7 VLP0196
LB9 VLP0196
LB8 VLP0196
C28 6V47
C29 0.1
C30 6V47
C31 0.1
(A10)
TL33005
TL33006
C2 0.1
C4 6V47
LB1 VLP0192
LB2 VLP0192
C6 0.1
C8 6V47
C35 0.1
QR5
UN5113
(MESECAM:ON)
R106 1K
QR3
UN5212
(MESECAM:ON)
R95 47K
R107 100K
(A19)(A20)
(CC7)(CC6)(CC5)(CC4)(CC3)(CC2)(CC1)(CC0)
13
14
15
16
17
18

NOTE:THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS ( )ON
THIS DIAGRAM IS RECORD MODE WITH PAL COLOUR SIGNAL. (S-VHS:SP MODE)


IC4
MN7A097B2C
(3D Y/C SEPARATION)
IC13
TC7S00FU
IC14
TC7S02FU
FRAME MEMORY I/F
RAM 0-5
LINE MEMORY I/F
Y/C SEPA
YNR
CNR
TIMING GENERATOR
EE PAL
EE MESECAM
VV
EE
TL33009
QR11
UN5213
(3D:ON)
R119 10K
R127 47K
C36 0.1
C37 0.1
C38 0.1
C39 0.1
C40 0.1

THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON
THIS DIAGRAM IS PLAYBACK MODE WITH PAL COLOUR SIGNAL. (S-VHS:SP MODE)

19 | 20 | 21 | 22 | 23 | 24


IC15
TC7S32FU
IC7
MN47V77S
IC6
F432536BPH
(TBC)
QR6
UN5113
(TBC Ⓗ: OFF)
R114
10K
C43
0.1
C44
0.1
C47 0.1
C46 0.1
R109
0
R124
100K
R123
47K
QR9
UN5113
(TBC Ⓗ: OFF)
QR10
UN5213
(TBC: OFF)
QR13
UN5213
(EE Ⓗ: ON)
C48
0.1
C49
0.1
C45
0.1
SYNC GENERATOR
MEMORY
BURST REPLACE
MEMORY
SYNC REPLACE
(B1)
(B2)(B3)(B4)
(B6)
(C7)(C6)(C5)(C4)(C3)(C2)(C1)(C0)
(A23)
(A13)
(A4)
(A14)
(A15)
(A12)
(A22)
(A19)
(CB7)
(CB6)
(CB5)
(CB4)
(CB3)
(CB2)
(CB1)
(CB0)
(A2)
(A3)
(A11)
(Y0)
(Y1)
(Y2)
(Y3)
(Y4)
(Y5)
(Y6)
(Y7)
(A20)
(A21)
(MA0)
(MA1)
(MA2)
(MA3)
(MA4)
(MA5)
(MA6)
(MA7)
(MB0)
(MB1)
(MB2)
(MB3)
(MB4)
(MB5)
(MB6)
(MB7)
(A17)(YB0)(YB1)(YB2)(YB3)
(YB4)(YB5)(YB6)(YB7)
MI0
MI1
MI2
MI3
WE
VSS
TEST
WRST
WCK
VCC
MI4
MI5
MI6
MI7
MO0
MO1
MO2
MO3
RE
VSS
OE
RRST
RCK
VCC
MO4
MO5
MO6
MO7
BFP
SYNC
TBCMOD0
TBCMOD1
TBCMOD2
TBCH
HASW1
VDD
VSS
HASW0
ADV
HR3
HR2
HR1
CB7
CB6
CB5
CB4
CB3
CB2
CB1
CB0
VD1
VS1
TLCL3D
TBCSW
TBCWR
TBCWE
TBCRR
TBCRE
VSS
VDD
COUT7
COUT6
COUT5
COUT4
COUT3
COUT2
COUT1
COUT0
TEST
CK8F0
VRON
EVCT
SCK
SDA
LPFH
VDD
VSS
YOUT0
YOUT1
YOUT2
YOUT3
YOUT4
YOUT5
YOUT6
YOUT7
VDD
VSS
CK4F0
13DL
PALNT
CK8F1
NESECAM
VSD
YB0
YB1
YB2
YB3
VSS
VDD
YB4
YB5
YB6
YB7
HSW1
LP
EE
CK4F
SRONON

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

REF. NO. 33000 SERIES

25	26	27	28	29	30

Order No. VRD9803016S8

Service Manual

Supplement

V18460
V18938
V18969
V19789
V18940
V19741
V19222

Video Product

Effective from : Running Change

Model No.
Mentioned Below

Subject : Change of Front Microprocessor / IC7501 & IC7503

Please use this service manual together with the service manual for Order No. and Model No. Mentioned Below

V19030
V18592
V19743
V17057
V20626
V18590
V18479
V19033

MODEL NO.	ORDER NO.	MODEL NO.	ORDER NO.
NV-HD620EG/EGH/B/BL HD620EC	VRD9704005C2	NV-HD620F	VRD9706012C2
		NV-HD620EGM/ECN	VRD9706006C2
NV-HD625EG/EGH/EGM HD625B/EC	VRD9706007C2	NV-HD625F	VRD9709014C2
		NV-HD625EE	VRD9708013C2
NV-SD420EG/EGH/B/BL	VRD9705004C2	NV-SD420F	VRD9709029C2
NV-SD427EE	VRD9708019C2	NV-SD270EG/EGH	VRD9704002C2
NV-SD270B	VRD9707011C2	NV-SD220EG/EGH/B/BL	VRD9704001C2
NV-SD220F	VRD9707016C2	NV-HS950EG	VRD9706009C2
NV-HS950B/EC	VRD9707017C2	NV-HS950EE/AM	VRD9709028C3

V20060

INTERCHANGEABILITY CODE See the I/C column on the following Part Number List

	Parts	Production		Parts	Production		Parts	Production		Parts	Production		
A	Original	Early	B	Original	Early	C	Original	Early	D	Original	Early	E	Addition
	New	Late		New	Late		New	Late		New	Late	F	Deletion
												G	Other

Parts Number List

Ref No.	Original Part No.	New Part No.	Part Name & Description	I/C	Remarks
IC7501	M37507V6AJ	M37507V3DB	IC	B	*1
IC7503	M37507V6AJ	M37507V3DB	IC	B	*2
IC7501	M37507V6AJ	M37507V3DB	IC	A	*3
		or M37507V6AJ	IC		
IC7503	M37507V6AJ	M37507V3DB	IC	A	*4
		or M37507V6AJ	IC		
IC7501	M37507V6AJ	M37507V3CU	IC	A	*5

*1 : NV-HS950EG/B/EC/EE, SD420EG/EGH/B/BL/F, SD270B
*2 : NV-HD625EG/EGH/EGM/B/EC/F/EE
*3 : NV-SD220EG/EGH/B/BL/F, SD270EG/EGH, SD427EE
*4 : NV-HD620EG/EGH/EGM/ECN/B/BL/EC/F
*5 : NV-HS950AM

17x

⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

Panasonic

© 1998 Matsushita Electric Industrial Co., LTd.
All rights reserved. Unauthorized copying and distribution is a violation of law.

Printed in Japan

V19033

Order No. VRD9809050S2

Service Manual

Supplement

Video Product

Effective from : Mentioned Below

Model No. Mentioned below

Subject : Improvement of the Decoder Pack & NICAM Decoder Pack / Changing the Parts Number of MAIN C.B.A.

Please use this service manual together with the service manuals [Order No.] which are listed Below.

[Effective Service Manual List]

No.	Model No.	Order No.	Subject
(1)	NV-HD610EG/EGH NV-HD660EG/EGH NV-HD670EG/EGH NV-HS950EG NV-HD620EG/EGH NV-HD625EG/EGH/EGM NV-HD620EGM	VRD9604M112 VRD9608M120 VRD9706008C2 VRD9706009C2 VRD9704005C2 VRD9706007C2 VRD9706006C2	Improvement of DECODER PACK
(2)	NV-HS950B NV-HD620B/BL NV-HD625B NV-HD620F NV-HD625F	VRD9707017C2 VRD9704005C2 VRD9706007C2 VRD9706012C2 VRD9709014C2	Improvement of NICAM DECODER PACK
(3)	NV-HD630EG/EG-S/EC/EC-S NV-HD628EG	VRD9805018C2	Changing the Parts Number of MAIN C.B.A.

1. Subject: Improvement of the Decoder Pack.
   Model No.:Refer to Above table"(1)"
   Effective From:Running Change

INTERCHANGEABILITY CODE See the I/C column on the following Part Number List

	Parts	Production		Parts	Production		Parts	Production		Parts	Production		
A	Original New	Early Late	B	Original New	Early Late	C	Original New	Early Late	D	Original New	Early Late	E F G	Addition Deletion Other

Parts Number List

Ref No.	Original Part No.	New Part No.	Part Name & Description	I/C	Remarks
	VEP07784D/E		DECODER PACK C.B.A.		
R7302	ERJ3GEYG133	ERJ3GEYG113	M.RESISTOR CH 1/16W 11K	C	

(To be continued to reverse side.)

⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

Panasonic

© 1998 Matsushita Electric Industrial Co., LTd.
All rights reserved. Unauthorized copying and distribution is a violation of law.

Printed in Japan

2. Subject: Improvement of the NICAM Decoder Pack.
Model No.:Refer to "[Effective Service Manual List at paragraph "(2)"]".
Effective From:Running Change

INTERCHANGEABILITY CODE See the I/C column on the following Part Number List

	Parts	Production		Parts	Production		Parts	Production		Parts	Production	E	Addition
A	Original	Early	B	Original	Early	C	Original	Early	D	Original	Early	F	Deletion
	New	Late		New	Late		New	Late		New	Late	G	Other

Parts Number List

Ref No.	Original Part No.	New Part No.	Part Name & Description	I/C	Remarks
	VEP07787Q/R		NICAM DECODER C.B.A.		
R7357	ERJ3GEYG472	ERJ3GEYG473	M.RESISTOR CH 1/16W 47K	C	
D7308	------------	MA723	DIODE	E	

3. Subject: Changing the Parts Number of MAIN C.B.A.
Model No.:Refer to"[Effective Service Manual List at paragraph "(3)"]"
Effective From :First Production

INTERCHANGEABILITY CODE See the I/C column on the following Part Number List

	Parts	Production		Parts	Production		Parts	Production		Parts	Production	E	Addition
A	Original	Early	B	Original	Early	C	Original	Early	D	Original	Early	F	Deletion
	New	Late		New	Late		New	Late		New	Late	G	Other

Parts Number List

Ref No.	Original Part No.	New Part No.	Part Name & Description	I/C	Remarks
	VEP06C30A	VEP06C82A	MAIN C.B.A.	A	NV-HD630EG/EG-S
	VEP06C30D	VEP06C82B	MAIN C.B.A.	A	NV-HD630EC/EC-S
	VEP06C30X	VEP06C82K	MAIN C.B.A.	A	NV-HD628EG

NOTE:There are full-interchangeability between VEP06C30 series and VEP06C82 series.

V 19055

Order No. VRD9812058S8

Service Manual

Supplement

Video Product

Effective from : Mentioned Below

Model No. Mentioned Below

Subject : Mentioned Below

Please use this service manual together with the service manual for Order No. Mentioned Below

No.	Model No.	Order No.	Subject
1	NV-HS1000EG	VRD9406M119	Correction of Electrical Adjustment
	NV-HS1000B/EC	VRD9408M134	
	NV-HS1000EG G	VRD9409M149	
	NV-HS800EG	VRD9409M137	
	NV-HS800B/EC	VRD9501M104	
	NV-HS800A/EA/EE	VRD9502M105	
	NV-HS1000EGC/BYP/ECP	VRD9511M158	
	NV-HS800BY/ECC	VRD9511M158	
2	NV-HS1000EG	VRD9406M119	Correction of Electrical Adjustment
	NV-HS1000B/EC	VRD9408M134	
	NV-HS1000EG G	VRD9409M149	
	NV-HS800EG	VRD9409M137	
	NV-HS800B/EC	VRD9501M104	
	NV-HS1000EGC/BYP/ECP	VRD9511M158	
	NV-HS800BY/ECC	VRD9511M158	
3	NV-HS900EG	VRD9511M156	Correction of Electrical Adjustment
	NV-HS900EGH	VRD9512M159	
	NV-HS900F	VRD9602M104	
	NV-HS900B/EC	VRD9604M111	
	NV-HS900F P	VRD9701M102	
4	NV-HS900F	VRD9602M104	Change of System Control Microprocessor
	NV-HS900F P	VRD9701M102	
5	NV-HS950AM	VRD9709028C3	Correction of Service Manual
6	NV-HS950B	VRD9707017C2	Change of AC Cord
7	NV-HS950EG	VRD9706009C2	Change of TBC IC
	NV-HS950B/EC	VRD9707017C2	
	NV-HS950AM/EE	VRD9709028C3	
	NV-HS950EEP	VRD9805019A2	
8	NV-HD600BD	VRD9507M129	Change of AV Cable
	NV-HD600MK2A,HD650MK2A	VRD9608M123	
9	NV-HD500MU,HD550MU	VRD9511M157	Change of AC Cord
	NV-SD55CMC	VRD9603M106	

⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

Panasonic

© 1998 Matsushita Electric Industrial Co., Ltd.
All rights reserved. Unauthorized copying and distribution is a violation of law.

Printed in Japan

1. Model No.:NV-HS1000EG/B/EC/EGG/EGC/BYP/ECP,HS800EG/B/EC/A/EA/EE/BY/ECC
   Subject:Correction of Electrical Adjustment
   Effective from:First Production

VHS PLAYBACK LEVEL ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP3021(Y) TP8021(C)	VR302(Y) VR804(C)	SP(SELF RECORDED PLAYBACK	PAL COLOUR BAR
TAPE	**M.EQ.**	**SPEC**	
BLANK TAPE	OSCILLO-SCOPE	Y=2.0+-0.1(Vp-p) C=1.1+-0.1(Vp-p)	

Note 1.Set the S-VHS SW to OFF position
2.Turn VR302 and VR804 to minimum level, then adjust them until the specification.

2. Model No.:NV-HS1000EG/B/EC/EGG/EGC/BYP/ECP,HS800EG/B/EC/BY/ECC
   Subject:Correction of Electrical Adjustment
   Effective from:First Production

S-VHS PLAYBACK LEVEL ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP3022(Y1) TP8021(Y2)	VR301(Y) VR304(C)	SP(SELF RECORDED PLAYBACK	PAL COLOUR BAR
TAPE	**M.EQ.**	**SPEC**	
S-VHS BLANK TAPE	OSCILLO-SCOPE	~~Y1=0.43+-0.01(Vp-p)~~ ↓ **Y1=0.38+-0.01(Vp-p)** Y2=2.0+-0.01(Vp-p)	

3. Model No.:NV-HS900EG/EGH/B/EC/F/F P
   Subject:Correction of Electrical Adjustment
   Effective from:First Production

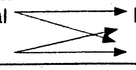
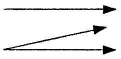
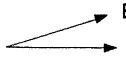
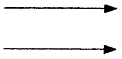
VHS PLAYBACK LEVEL ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP3002	VR302	SP(SELF RECORDED PLAYBACK	PAL COLOUR BAR
TAPE	**M.EQ.**	**SPEC**	
BLANK TAPE	OSCILLO-SCOPE	Y=2.0+-0.2(Vp-p)	

Note: 1.Set the S-VHS SW to OFF position
2.Turn VR302 to minimum level, then adjust it until the specification.

4. Model No.:NV-HS900F/F P
   Subject:Change of System Control Microprocessor
   Effective from:C8.......

INTERCHANGEABILITY CODE See the I/C column on the following Part Number List

	Parts		Production
A	Original New		Early Late
B	Original New		Early Late
C	Original New		Early Late
D	Original New		Early Late

E	Addition
F	Deletion
G	Other

Parts Number List

Ref No.	Original Part No.	New Part No.	Part Name & Description	I/C	Remarks
IC6001	MN6755486H4H	MN6755486H4P	IC	B	

9812058888

5. Model No.:NV-HS950AM

Subject:Correction of Service Manual
Effective from:First Production

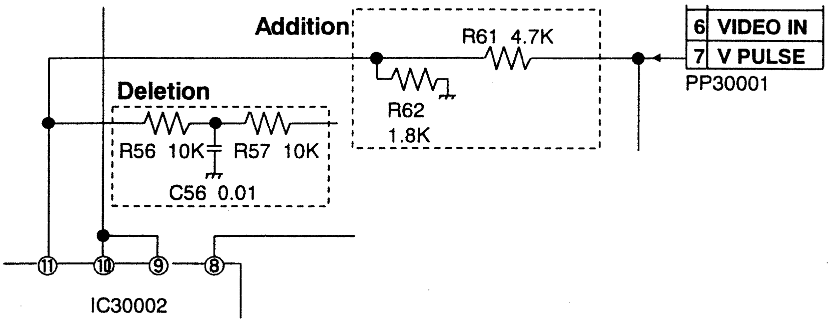
INTERCHANGEABILITY CODE													See the I/C column on the following Part Number List
	Parts	Production		Parts	Production		Parts	Production		Parts	Production	E	Addition
A	Original	Early	B	Original	Early	C	Original	Early	D	Original	Early	F	Deletion
	New	Late		New	Late		New	Late		New	Late	G	Other

Parts Number List

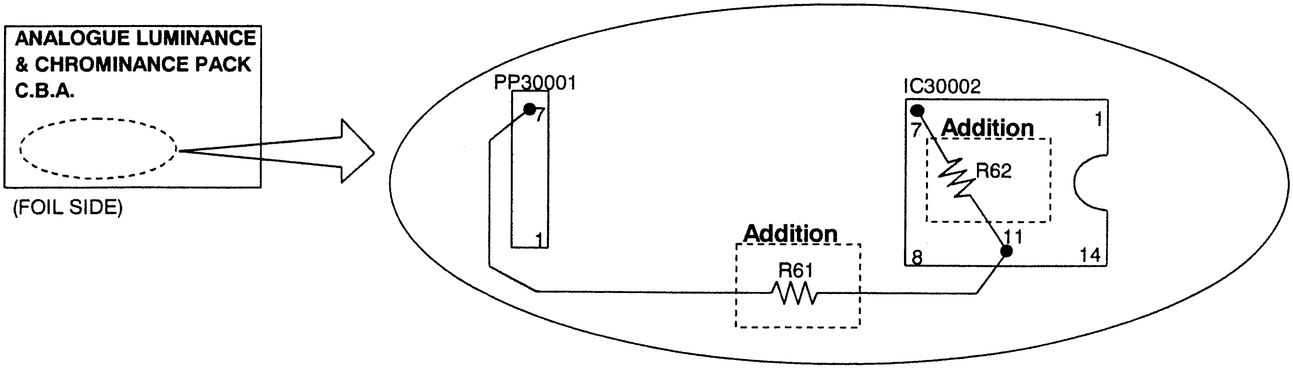
Ref No.	Original Part No.	New Part No.	Part Name & Description	I/C	Remarks
	VEP03D75A	VEP03D75C	DIGITAL C.B.A.	G	
	VEP03D76A	VEP03D76C	ANALOGUE C.B.A.	G	
R30056	ERJ3GEYJ103	------------	RESISTOR	G	
R30057	ERJ3GEYJ103	------------	RESISTOR	G	
C30056	ECUX1H103KBV	------------	CAPACITOR	G	
R30061	------------	ERDS2TJ472	RESISTOR	G	
R30062	------------	ERDS2TJ182	RESISTOR	G	
IC33008	PST591DM	PST591DMT	IC	G	

Note : 1. The difference between VEP03D75A and VEP03D75C
VEP03D76A has been changed to VEP03D76C.
2. The difference between VEP03D76A and VEP03D76C
R30056, R30057 and C30056 have been deleted, and R30061 and R30062 have been added.

3-13. ANALOGUE LUMINANCE & CHROMINANCE PACK SCHEMATIC DIAGRAM


Addition
R61 4.7K
R62
1.8K
Deletion
R56 10K
R57 10K
C56 0.01
6 VIDEO IN
7 V PULSE
PP30001
⑪
⑩
⑨
⑧
IC30002

3-28. ANALOGUE LUMINANCE & CHROMINANCE PACK C.B.A.(VEP03D76C)


ANALOGUE LUMINANCE & CHROMINANCE PACK C.B.A.
(FOIL SIDE)
PP30001
7
1
IC30002
7
1
Addition
R62
11
8
14
Addition
R61

6. Model No.:NV-HS950B

Subject:Change of AC Cord
Effective from:Running Change

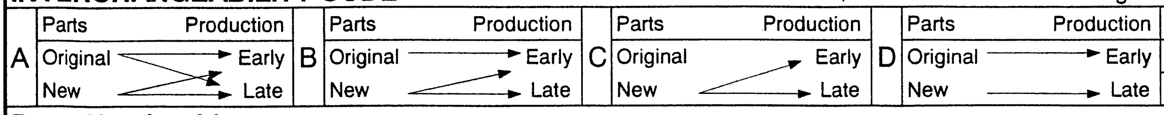
INTERCHANGEABILITY CODE													See the I/C column on the following Part Number List
	Parts	Production		Parts	Production		Parts	Production		Parts	Production	E	Addition
A	Original	Early	B	Original	Early	C	Original	Early	D	Original	Early	F	Deletion
	New	Late		New	Late		New	Late		New	Late	G	Other

Parts Number List

Ref No.	Original Part No.	New Part No.	Part Name & Description	I/C	Remarks
307(4)	VJA0733	VJA0940	AC CORD	A	

7. Model No.:NV-HS950EG/B/EC/AM/EE/EEP
Subject:Change of TBC IC
Effective from:F8.......
Please refer supplement service manual(Order No.VRD9709032S2) together for NV-HS950EG/B/EC.

INTERCHANGEABILITY CODE See the I/C column on the following Part Number List


A
Parts
Production
Original
Early
New
Late
B
Parts
Production
Original
Early
New
Late
C
Parts
Production
Original
Early
New
Late
D
Parts
Production
Original
Early
New
Late

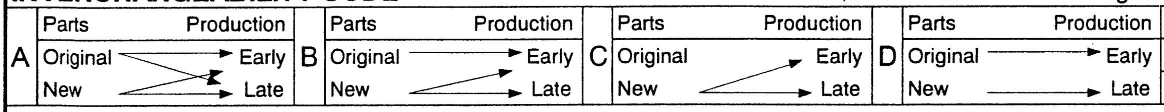
E	Addition
F	Deletion
G	Other

Parts Number List

Ref No.	Original Part No.	New Part No.	Part Name & Description	I/C	Remarks
IC33006	F432536BPH	F432536CPH	IC	B	

8. Model No.:NV-HD600BD/MK2A,HD650MK2A
Subject:Change of AV Cable
Effective from:K6.......

INTERCHANGEABILITY CODE See the I/C column on the following Part Number List


A
Parts
Production
Original
Early
New
Late
B
Parts
Production
Original
Early
New
Late
C
Parts
Production
Original
Early
New
Late
D
Parts
Production
Original
Early
New
Late

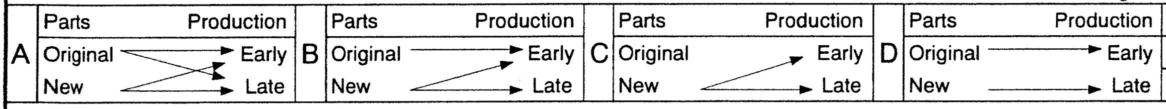
E	Addition
F	Deletion
G	Other

Parts Number List

Ref No.	Original Part No.	New Part No.	Part Name & Description	I/C	Remarks
306(4)	VJA0231	VJA0788	AV CABLE	B	NV-HD600BD,HD650MK2A
350(4)	------------	VJA0788	AV CABLE	E	NV-HD600MK2A

9. Model No.:NV-HD500MU,HD550MU,SD55CMC
Subject:Change of AC Cord
Effective from:F7.......

INTERCHANGEABILITY CODE See the I/C column on the following Part Number List


A
Parts
Production
Original
Early
New
Late
B
Parts
Production
Original
Early
New
Late
C
Parts
Production
Original
Early
New
Late
D
Parts
Production
Original
Early
New
Late

E	Addition
F	Deletion
G	Other

Parts Number List

Ref No.	Original Part No.	New Part No.	Part Name & Description	I/C	Remarks
304(4)	VJA0667	VJA1040	AC CORD	B	

ORDER NO. VSD9402M632

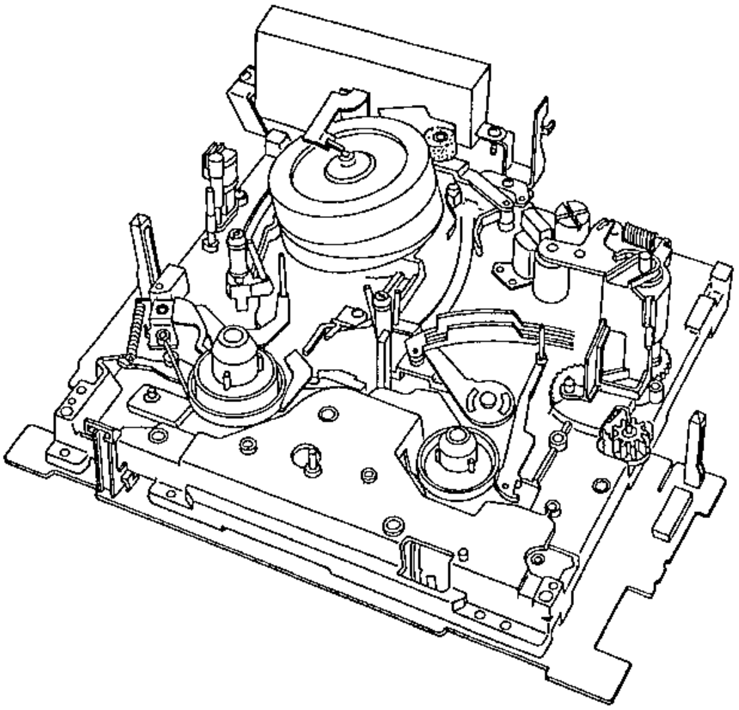
Service Manual

Sec. 1 *General Information*
Sec. 2 *Maintenance Procedures*
Sec. 3 *Mechanical Adjustment Procedur*
Sec. 4 *Assembly & Phase Adjustment Procedure*

Video Cassette Recorder

VHS
PAL

K-MECHANISM



IMPORTANT

The K-MECHANISM chassis are built in several Panasonic SVHS／VHS Video Cassette Recorder.

Thus, Properly file this service manual with the service manual of the relative video cassette recorder.

Panasonic

INTRODUCTION

This Service Manual contains the technical information which service personnel to understand and service the K-Mechanism.
The Maintenance Chart, Mechanical Parts List and Mechanical Specification, please refer to the service manual of each model.

CONTENTS

SECTION 1 GENERAL INFORMATION 1-1
- 1-1. FEATURE of K MECHANISM 1-1
  - 1-1-1. Parts Reduction 1-1
  - 1-1-2. No Adjustment of the following is required 1-1
  - 1-1-3. Reduced Gear Phase Position Alignments 1-1
- 1-2. OPERATION of K-MECHANISM 1-1
- 1-3. EMERGENCY CASSETTE REMOVAL 1-1
- 1-4. EJECT OPERATION 1-2
- 1-5. REMOVAL of MECHANISM 1-2
  - 1-5-1. Removal of Top Plate 1-2
  - 1-5-2. Removal of Mechanism Chassis 1-3
  - 1-5-3. Removal of Mechanism Connection C.B.A. 1-3
- 1-6. SERVICE FIXTURES AND TOOLS 1-4
- 1-7. Mechanical Parts Location 1-5

SECTION 2 MAINTENANCE PROCEDURE 2-1
- 2-1. Replacement of the Upper Cylinder Unit 2-1
- 2-2. Replacement of Cylinder Unit 2-2
- 2-3. Replacement of A/C HEAD Unit 2-2
- 2-4. Replacement of Full Erase Head Unit 2-3
- 2-5. Replacement of Capstan Rotor Unit and Stator Unit 2-3
- 2-6. Replacement of Impedance Roller Unit 2-3
- 2-7. Replacement of Pinch Arm Unit 2-4
- 2-8. Replacement of Take-up and Supply Reel Base Units 2-4
- 2-9. Replacement of Take-up and Supply Brake Arm Unit 2-5
- 2-10.Replacement of Tension Band Unit 2-5
- 2-11.Replacement of Loading Motor Unit 2-6
- 2-12.Replacement of Cleaner Roller Unit 2-6
- 2-13.Replacement of SS Brake Base Unit and Timing Belt 2-7
- 2-14.Replacement of Supply & Take-up Inclined Base Unit 2-7

SECTION 3 MECHANICAL ADJUSTMENT PROCEDURE 3-1
- 3-1. Coarse Adjustment of Tape Guide Post Heigth 3-1
- 3-2. Fine Adjustment of P2 and P3 Posts 3-2
- 3-3. Coarse Adjustment of A/C Head Height (1) 3-2
- 3-4. Coarse Adjustment of A/C Head Height (2) 3-3
- 3-5. Fine Adjustment of A/C Head Height 3-3
- 3-6. Horizontal Position Adjustment of A/C Head 3-3
- 3-7. Adjustment of Tension Post Position 3-4
- 3-8. Adjustment of Back Tension 3-4
- 3-9. Adjustment of Capstan Housing & Stator 3-5
- 3-10.Adjustment of Thrust Gap 3-6
- 3-11.Adjustment of FG GAP 3-6
- 3-12.Pressing Force Confirmation of the Pressure Roller 3-6

SECTION 4 ASSEMBLY & PHASE ADJUSTMENT PROCEDURE 4-1
- 4-1. Assembly Procedures of Mechanism 4-1
- 4-2. Assembly of parts on the Top Chassis 4-2
- 4-3. Assembly of parts on the Bottom Chassis 4-2
- 4-4. Assembly of Main Cam Gear and Sub Cam Gear 4-3
- 4-5. Assembly of Mode Switch 4-3
- 4-6. Assembly of Take-up and Supply Loading Gears 4-4
- 4-7. Assembly of Main Lever 4-4
- 4-8. Reinstall of the Cassette Compartment 4-6

SECTION 1
GENERAL INFORMATION

The K mechanism maintains the same high performance as G2 mechanism but with a smaller quantity of mounted parts, 40% less than G2 mechanism.

1-1. FEATURE of K MECHANISM

1-1-1. Parts Reduction

<K Mechanism>

a. Reduction in the number of drive parts through the use of a single motor to perform front loading and unit loading.
b. Direct drive of brakes and loading gears with the multi-function main lever.
c. Elimination of sub lever and solenoids.

<Front Loading Unit>

a. Elimination of a slide switch, to reduce wiring.
b. Elimination or combining the joint parts.
c. Smaller and thinner the top plate and rack parts.

1-1-2. No Adjustment of the following is required.

a. Take-up inclined position.
b. P5 Post height.

1-1-3. Reduced Gear Phase Position Alignments

The K Mechanism has only 6 gear phase alignment positions and G2 mechanism has 12 gear phase alignment positions.

1-2. OPERATION of K-MECHANISM

The K mechanism has two motors, the loading motor and capstan motor. The loading motor operates the front loading/unloading and tape loading/unloading. The capstan motor operates each mode.
The bottom C.B.A. connects the mechanism to the system control circuit. On the bottom C.B.A. there are take-up and supply photo-sensors, Sensor LED, Mode Switch Connector, Safety Tab Switch, Supply and Take-up Reel Sensors and Loading Motor Connector. All sensor information sent to the system control circuit.

1-3. EMERGENCY CASSETTE REMOVAL

If the electrical circuit is defective and the action of unloading and front unloading do not work properly, it is possible to removing cassette manually.
There are 2 methods of removing the cassette.

A. Battery Operation

1. Remove the bottom plate.
2. Connect the battery (Manganese-Type (AA)(R6) 3pcs./+4.5V) to P1503 as shown in Fig.G1.
3. After moving the loading post to the unloaded position, disconnect the battery to stop the loading motor.
4. Turn the capstan rotor clockwise to take up the tape.
5. Reconnect the battery to eject the cassette.

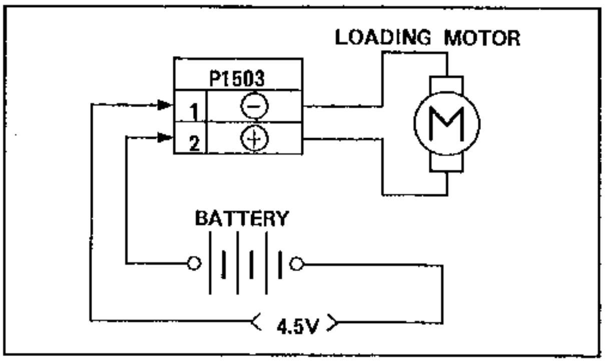


Fig.G1

B. Hand Operation

1. Remove the bottom plate.
2. Turn the worm gear to arrow mark direction (A) by finger as shown in Fig.G2 until loading post move to unloading position.
3. Turn the capstan rotor clockwise (B) to take up the tape.
4. Turn the worm gear again to eject the cassette.

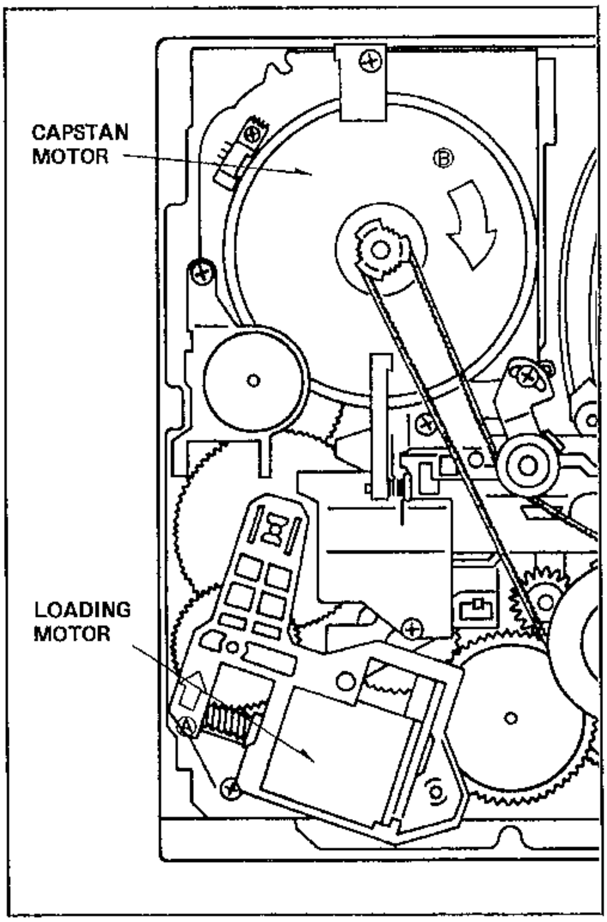

CAPSTAN MOTOR
Ⓑ
LOADING MOTOR
Ⓐ

Fig.G2

1-4. EJECT OPERATION

The main cam gear rotates in the direction of the arrow. The projection (B) of the carriage connection gear engages with the recession (A) of the main cam gear. The carriage connection gear rotates in the direction of the arrow to perform the Eject operation.

If the Eject operation is performed without the cassette installed while repairing or making the mechanical phase alignment, the main cam gear will not rotate. For performing the Eject operation with the cassette carriage not installed, it is necessary to rotate the carriage connection gear by hand in the direction of the arrow.

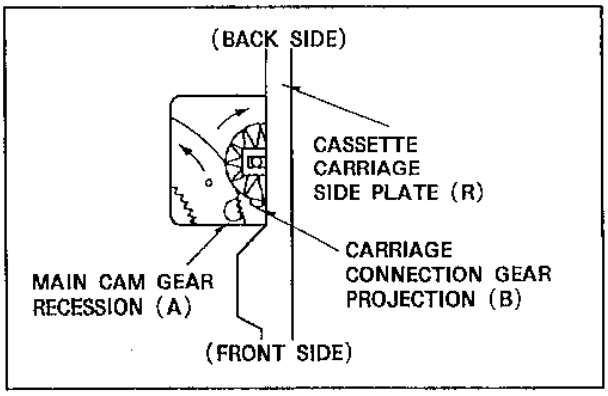

(BACK SIDE)
CASSETTE CARRIAGE SIDE PLATE (R)
CARRIAGE CONNECTION GEAR PROJECTION (B)
MAIN CAM GEAR RECESSION (A)
(FRONT SIDE)

Fig.G3

1-5. REMOVAL of MECHANISM

1-5-1. Removal of Top Plate

1. Unscrew 2 screws (A) and unlock 4 locking tabs to arrow direction as shown in Fig.G4.
2. Lift up the Top Plate.

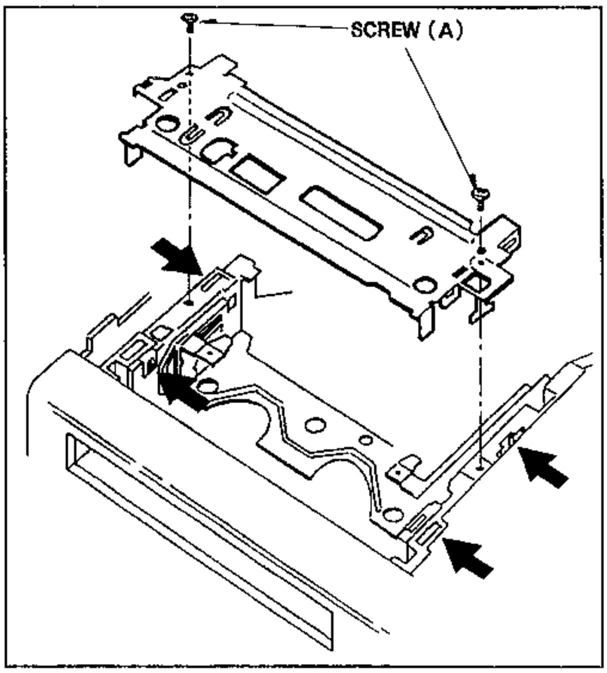


Fig.G4

1-5-2. Removal of Mechanism Chassis

1. Unscrew 2 screws (A) push the Holder Plate slightly to rear of the mechanism.
2. Unscrew a screw (B).
3. Disconnect all cable and connectors on the mechanism chassis.
   1)FE Head connector
   2)A/C Head connector
   3)Power Transistor connector
   4)Head Amp connector
   5)Capstan cable
4. Disconnect a Dew Sensor connector on the MAIN C.B.A.
5. Lift the mechanism chassis slightly and disconnect a connector of Cylinder Motor and a cable of Mechanism Connection C.B.A.
   Then mechanism chassis out of the unit.

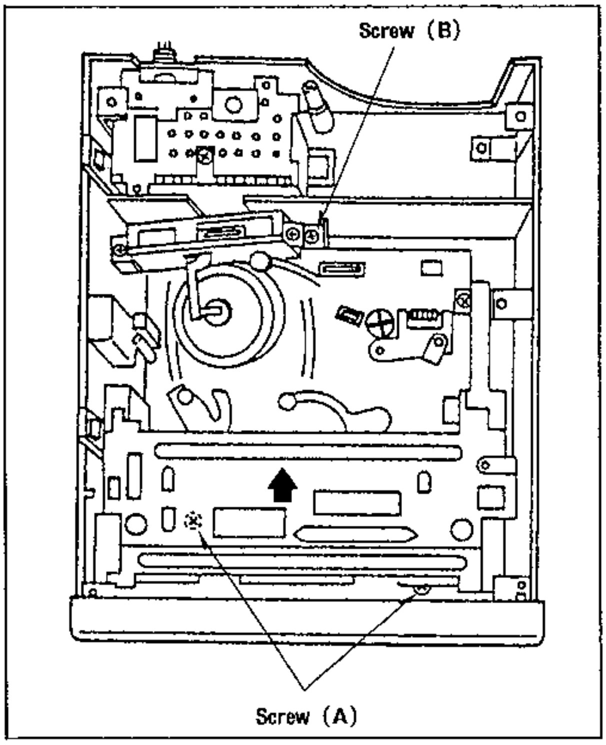


Fig.G5

1-5-3. Removal of Mechanism Connection C.B.A.

1. Unscrew 4 screws (C).
2. Lift up the Mechanism Connection C.B.A.

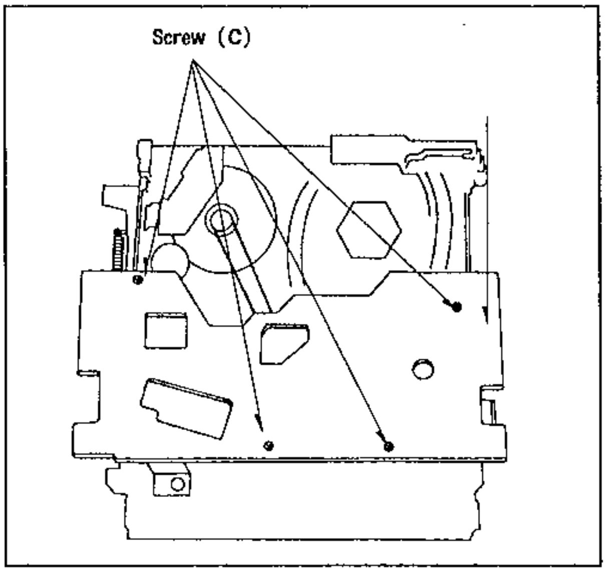
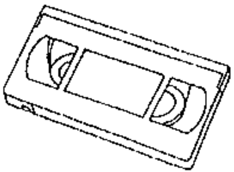
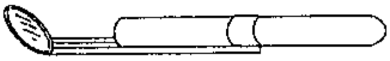
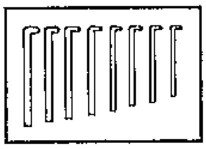
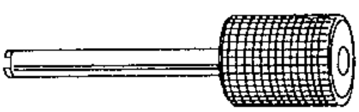
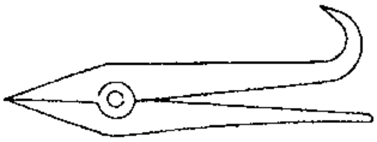
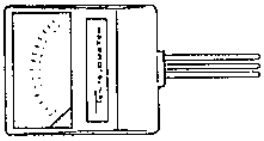
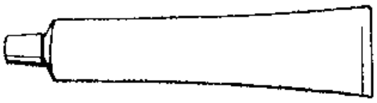
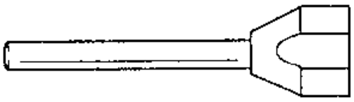
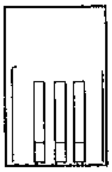
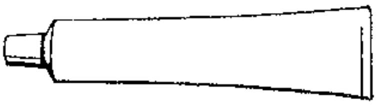
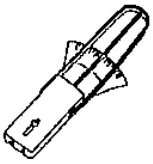
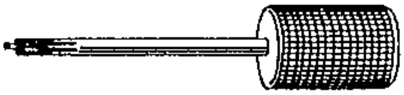


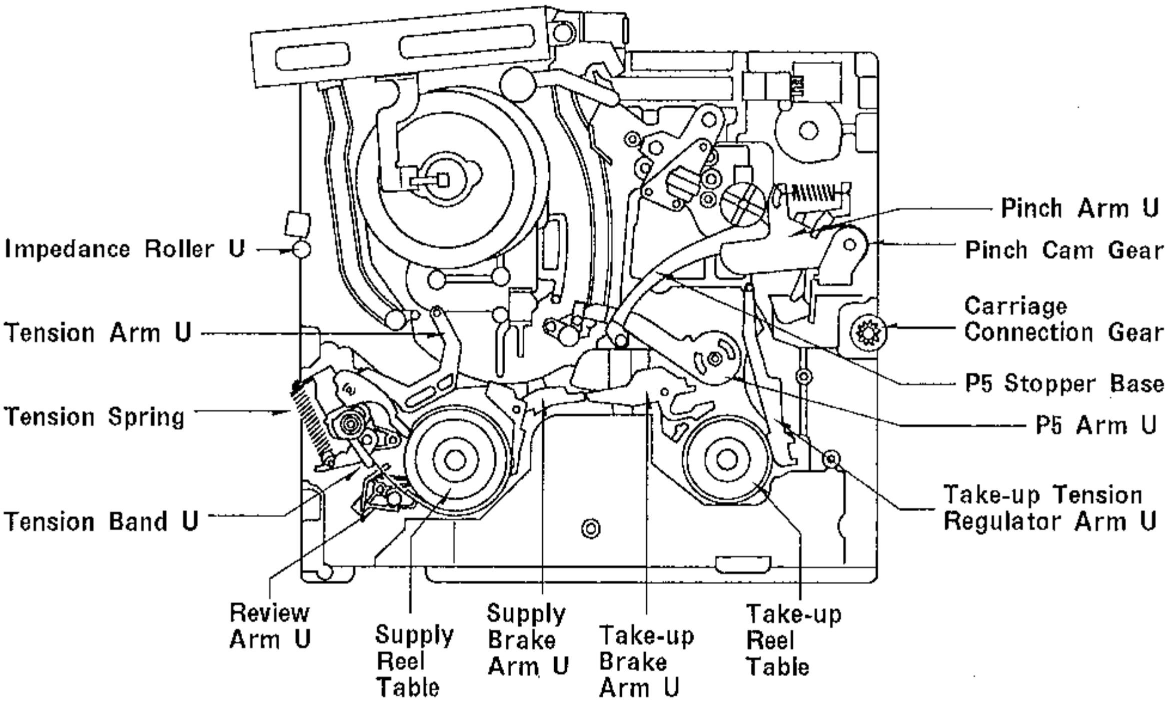
Fig.G6

1-6. SERVICE FIXTURES AND TOOLS

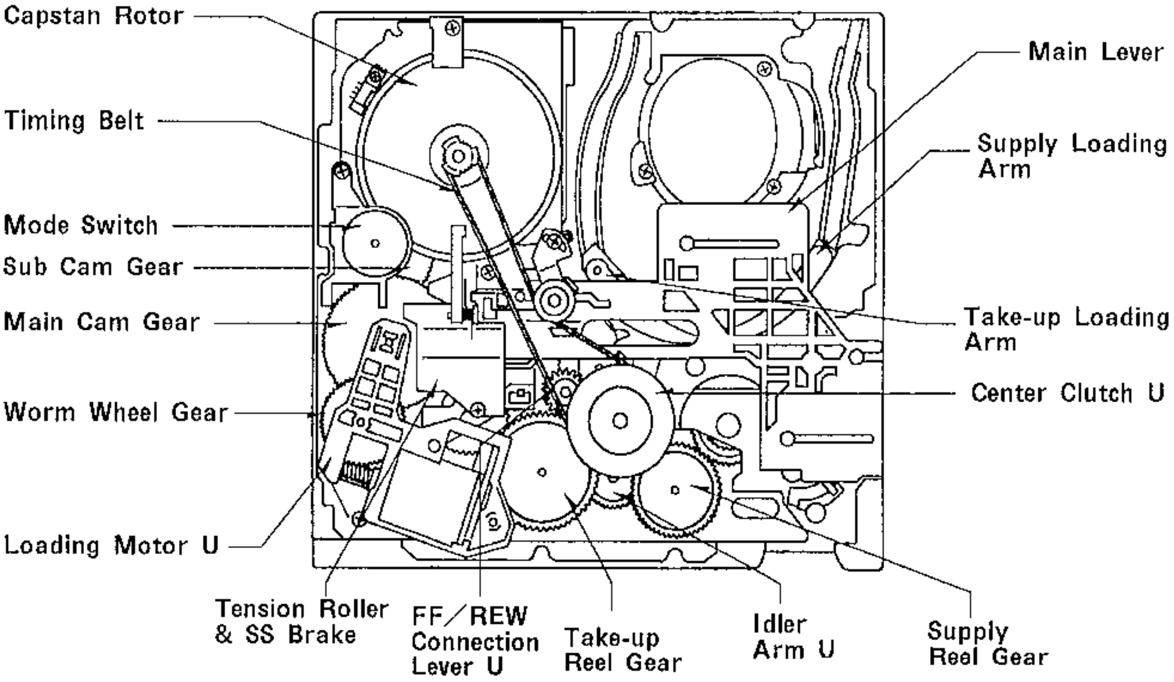
The regular maintenance is important to maintain the initial specification of the unit and prevent tape damage. The specified servicing fixture must be used to conduct adjustment.
The following fixtures, tools and measuring equipments are required to conduct complete Mechanical Adjustments.

VFM8080HQFP: VHS Alignment Tape 	VFK0948: Check Light 	VFK0326: Hex Wrench Set (0.7, 0.9, 1.2, 1.5, 1.6, 2.0, 2.4, 3.0mm) 
VFK0329: Post Adj. Screwdriver 	VFK0335: Retaining Ring Remover 	VFK0132: Back Tension Meter (Tentelometer,Made in U.S.A.) 
MOR265: Morlytone Grease (Black) (for metal parts) 	VFK0851: Center Fixing Tool 	VFK27: Head Cleaning Stick 
VFK0680: S.C.R. Grease (White) (for plastic parts) 	VFK66 ; Fan Type Tension Gauge 	VFK0330: Fine Adj. Screwdriver 

1-7. Mechanical Parts Location


Impedance Roller U
Tension Arm U
Tension Spring
Tension Band U
Review Arm U
Supply Reel Table
Supply Brake Arm U
Take-up Brake Arm U
Take-up Reel Table
Pinch Arm U
Pinch Cam Gear
Carriage Connection Gear
P5 Stopper Base
P5 Arm U
Take-up Tension Regulator Arm U

《TOP VIEW》


Capstan Rotor
Timing Belt
Mode Switch
Sub Cam Gear
Main Cam Gear
Worm Wheel Gear
Loading Motor U
Tension Roller & SS Brake
FF/REW Connection Lever U
Take-up Reel Gear
Idler Arm U
Supply Reel Gear
Main Lever
Supply Loading Arm
Take-up Loading Arm
Center Clutch U

《BOTTOM VIEW》

SECTION 2
MAINTENANCE PROCEDURE

The MAINTENANCE CHART please refer to the Maintenance Section which are shown in service manual for each model.

2-1. Replacement of the Upper Cylinder Unit

1. Unscrew 2 screws (A).
2. Unsolder arrows marked portions on the top of the Upper Cylinder as shown in Fig.M1.
3. Remove the Upper Cylinder.
4. The Upper Cylinder can be reinstalled by reversing the removal procedure.
   However, when insert the Upper Cylinder be extremely carefully so that marked portion of P.C.board of the Upper Cylinder correctly matches to mark of the Lower Cylinder as shown in Fig.M2.

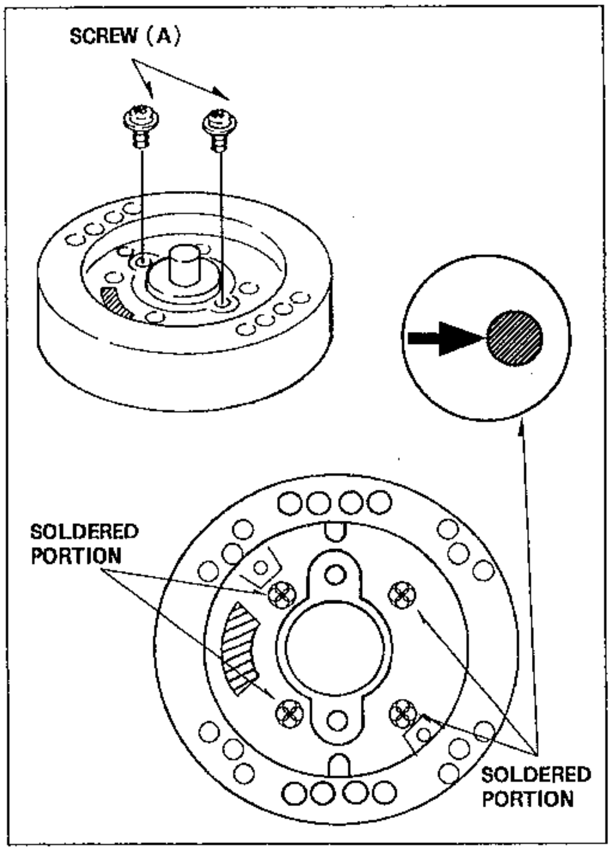


Fig.M1

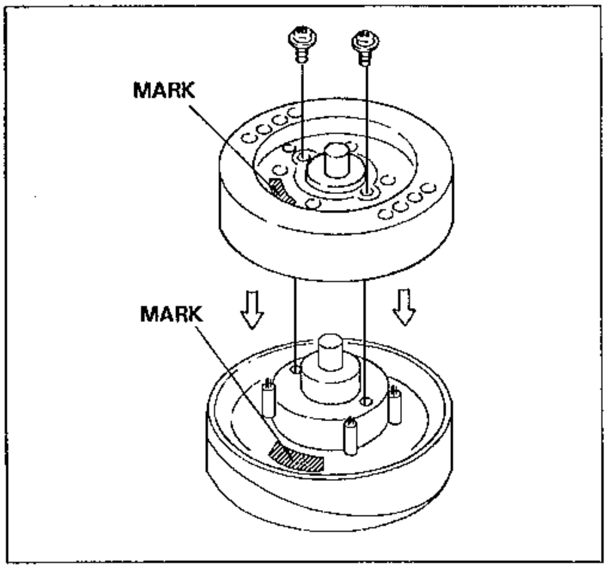


Fig.M2

<NOTE>

After reinstall the Upper Cylinder Unit should be perform Mechanical and Electrical adjustments.

3-2. FINE ADJUSTMENT of P2 and P3 POSTS
3-6. HORIZONTAL POSITION ADJUSTMENT

2-2. Replacement of Cylinder Unit

1. Remove the Earth Plate.
2. Unscrew 2 screws both side of Head Amp Unit and lift up the Head AMP.
3. Unscrew 3 screws (B) from back side of the mechanical chassis then remove the Cylinder Unit.
4. The Cylinder Unit can be reinstalled by reversing the removal procedure.

<Note>

After reinstall the Cylinder Unit should be perform Mechanical and Electrical adjustments.

3-2. FINE ADJUSTMENT of P2 and P3 POSTS
3-6. HORIZONTAL POSITION ADJUSTMENT

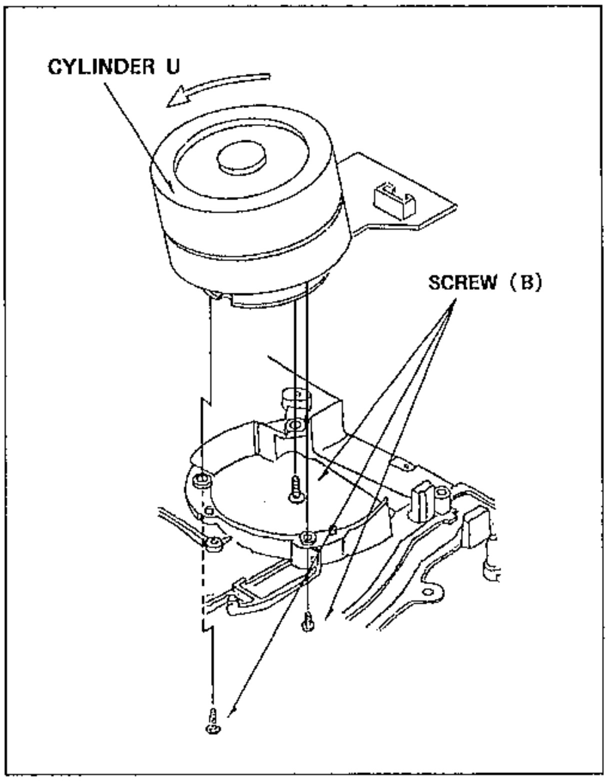


Fig.M3

2-3. Replacement of A/C HEAD Unit

1. Unscrew 3 screws (C)(D)(E) with the 3 springs then remove the A/C Head unit from the A/C Head Base.
2. The A/C Head Unit can be reinstalled by reversing the removal procedure.

<Note>

A space should be equality between the A/C Head U and the A/C Head Base when reinstall the A/C Head unit.

After reinstall the A/C Head Unit should be perform Mechanical and Electrical adjustments.

3-2. FINE ADJUSTMENT of P2 and P3 POSTS
3-3. COARSE ADJUSTMENT of A/C HEAD HEIGHT(1)
3-4. COARSE ADJUSTMENT of A/C HEAD HEIGHT(2)
3-5. FINE ADJUSTMENT of A/C HEAD HEIGHT
3-6. HORIZONTAL POSITION ADJUSTMENT

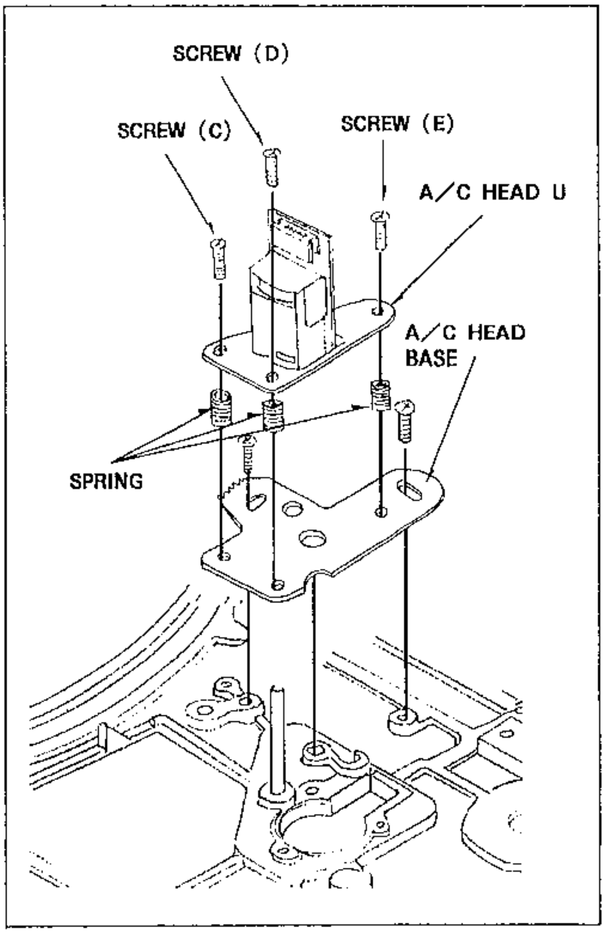


Fig.M4

2-4. Replacement of Full Erase Head Unit

1. Disconnect a connector (A).
2. Unscrew screw (F) then remove the FE Head.
3. FE Head Unit put into hole on the mechanical chassis and can be reinstalled by reversing the removal procedure.

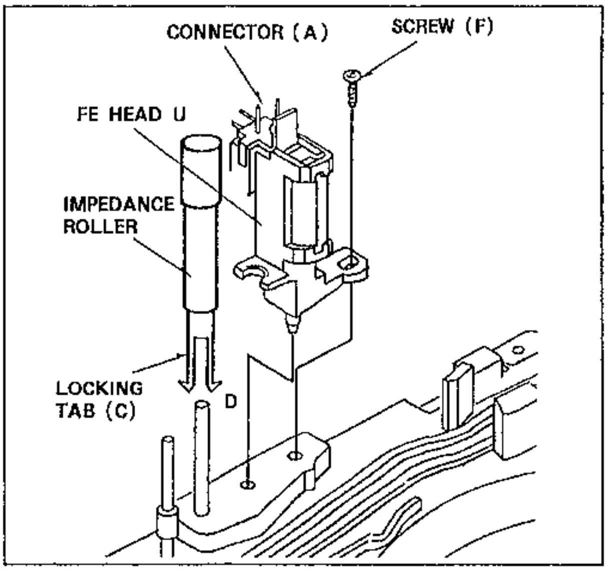


Fig.M5

2-5. Replacement of Capstan Rotor Unit and Stator Unit

1. Remove the Rotor Stopper.
2. Carefully lift up the Capstan Rotor from the Capstan Housing, taking care so as not loose the 2 Oil Seals.
3. Unscrew 3 screws (G) and remove the Capstan Stator Unit as shown in Fig.M6.
4. The Capstan Rotor and Stator can be reinstalled by reversing the removal procedure.

<Note>

After reinstall the Capstan Rotor and Stator Units should be perform Mechanical adjustment.

3-9. ADJUSTMENT of CAPSTAN HOUSING & STATOR
3-10. ADJUSTMENT of THRUST GAP
3-11. ADJUSTMENT of FG GAP

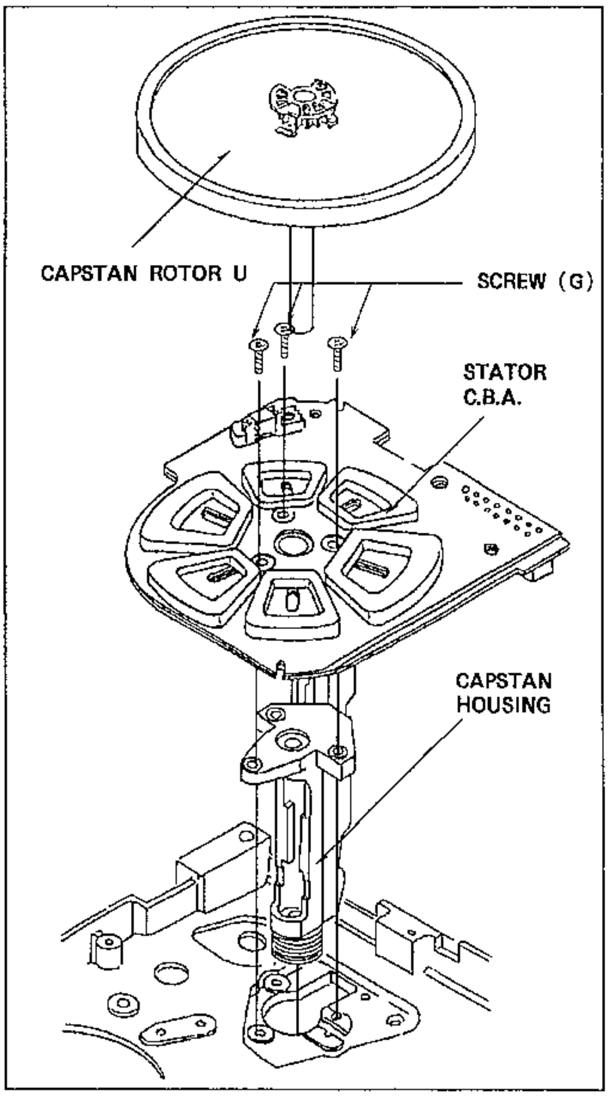


Fig.M6

2-6. Replacement of Impedance Roller Unit

1. Remove the Full Erase Head Unit with removal procedure(2-4).
2. Unlock then locking tab to direction of arrow mark as shown in Fig.M5 and remove the Impedance Roller Unit.
3. The Impedance Roller Unit can be reinstalled by reversing the removal procedure.

2-7. Replacement of Pinch Arm Unit

1. Unlock the locking tab on the Opener Piece and remove it from the shaft.
2. Remove the Pinch Arm Unit from the shaft.
3. The Pinch Arm Unit can be reinstalled by reversing the removal procedure.

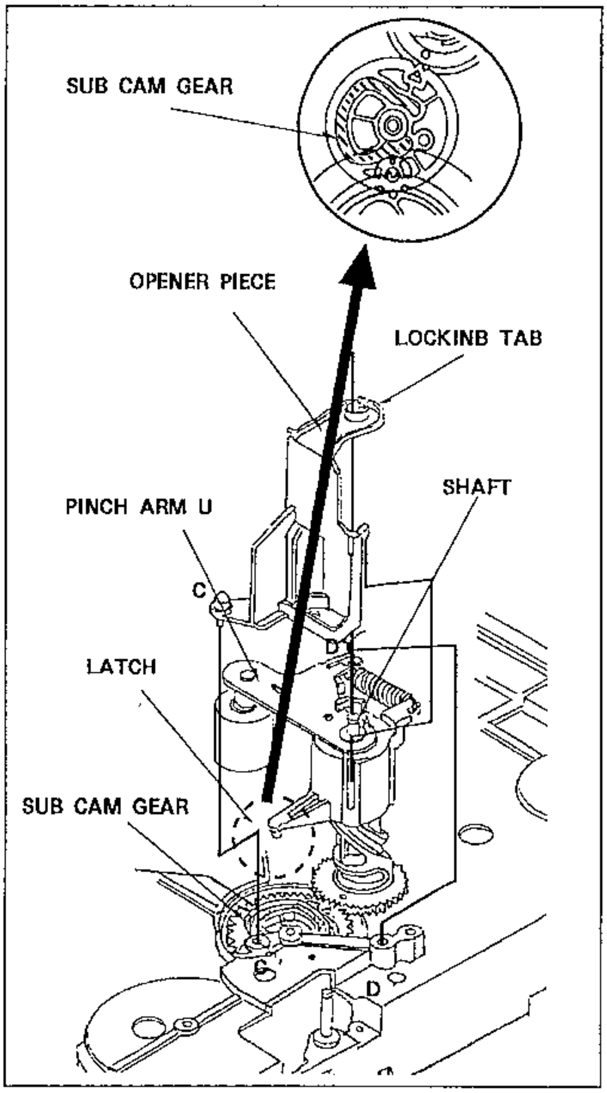

SUB CAM GEAR
OPENER PIECE
LOCKINB TAB
SHAFT
PINCH ARM U
C
D
LATCH
SUB CAM GEAR
C
D

Fig.M7

2-8. Replacement of Take-up and Supply Reel Base Units

A. Supply Reel Base Unit

1. Remove the Tension Band Unit on the Supply Reel Base Unit.
2. Push the Supply main Brake Arm to direction of arrow mark and unlock the locking tab on the Supply Reel Base then pull up the Supply Reel Base Unit as shown in Fig.M8.
3. The Supply Reel Base Unit can be reinstalled by reversing the removal procedure.

B. Take-up Reel Base Unit

1. Push the Take-up Main Brake Arm to direction of arrow mark and unlock the locking tab on the top of Take-up Reel Base then pull out the Supply Reel Base Unit as shown in Fig.M8.

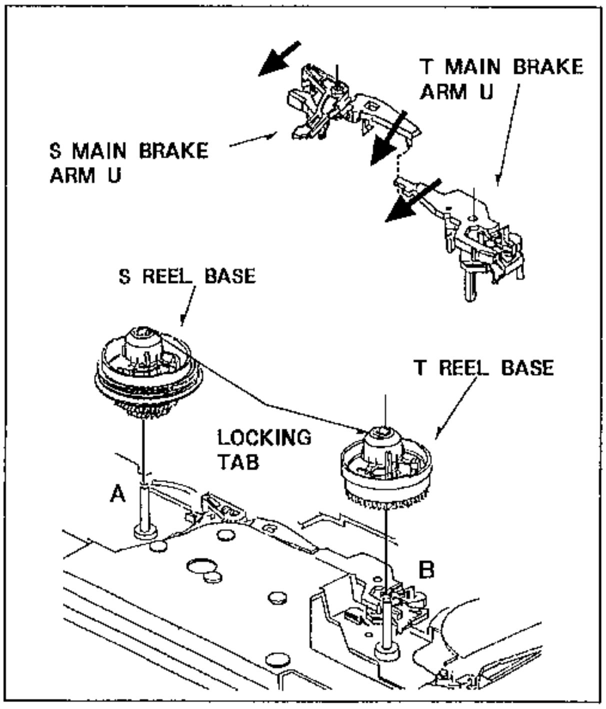

T MAIN BRAKE ARM U
S MAIN BRAKE ARM U
S REEL BASE
T REEL BASE
LOCKING TAB
A
B

Fig.M8

2-9. Replacement of Take-up and Supply Brake Arm Unit.

1. Unlock the locking tab (A) to direction of arrow mark and lift up the Supply Brake Arm Unit.
2. Unlock the locking tab (B) and lift up the Take-up Brake Arm Unit.
3. Both Brake Arm Units can be reinstalled by reversing the removal procedure.
   However the boss (C) of the Supply Brake Arm Unit insert to hole (E) of mechanical chassis while pushing the Main Lever to direction of arrow mark as shown in Fig.M9. (expanded view)

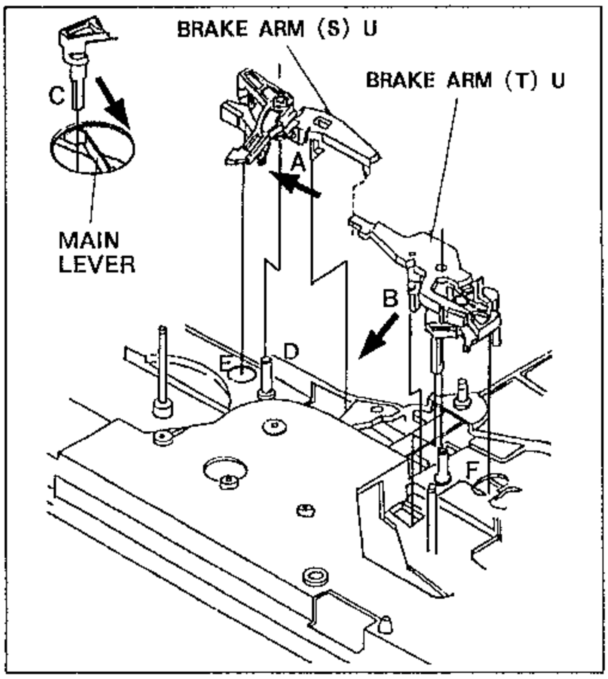

BRAKE ARM (S) U
BRAKE ARM (T) U
C
MAIN LEVER
A
B
E
D
F

Fig.M9

2-10. Replacement of Tension Band Unit

1. Remove the cut washer (H) and lift up the Tension Arm Unit with the Tension Band and spring from the Tension Spring Arm.
2. Unlock the locking tab (A) to direction of arrow mark and remove the Tension Band from the Arm Unit.
3. Unlock the locking tab (B) and remove the Tension Band from the Tension Arm Unit.
4. The Tension Band Unit can be reinstalled by reversing the removal procedure.

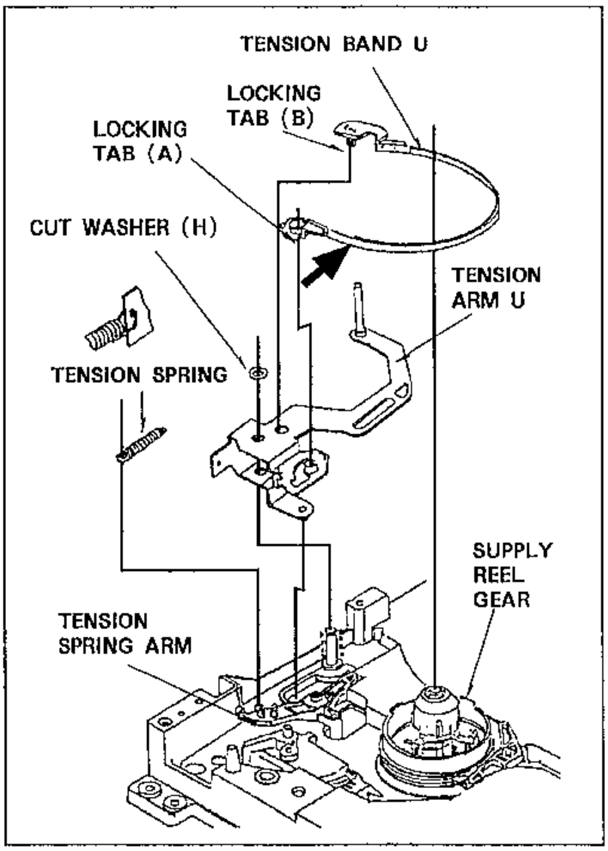

TENSION BAND U
LOCKING TAB (B)
LOCKING TAB (A)
CUT WASHER (H)
TENSION ARM U
TENSION SPRING
SUPPLY REEL GEAR
TENSION SPRING ARM

Fig.M10

2-11. Replacement of Loading Motor Unit

1. Unscrew screw (I).
2. Unlock the locking tab (A) from the top of the mechanical chassis.
3. Lift up the Loading Motor Bracket and push it to direction of arrow mark as shown in Fig.M11.
4. When reinstall the Loading Motor Unit, insert the locking hole (B') of Loading Motor Bracket Unit to shaft (B) on the mechanical chassis. Also a hole (C) of the loading Motor Unit must be matched to the shaft (C') as shown in Fig.M11.

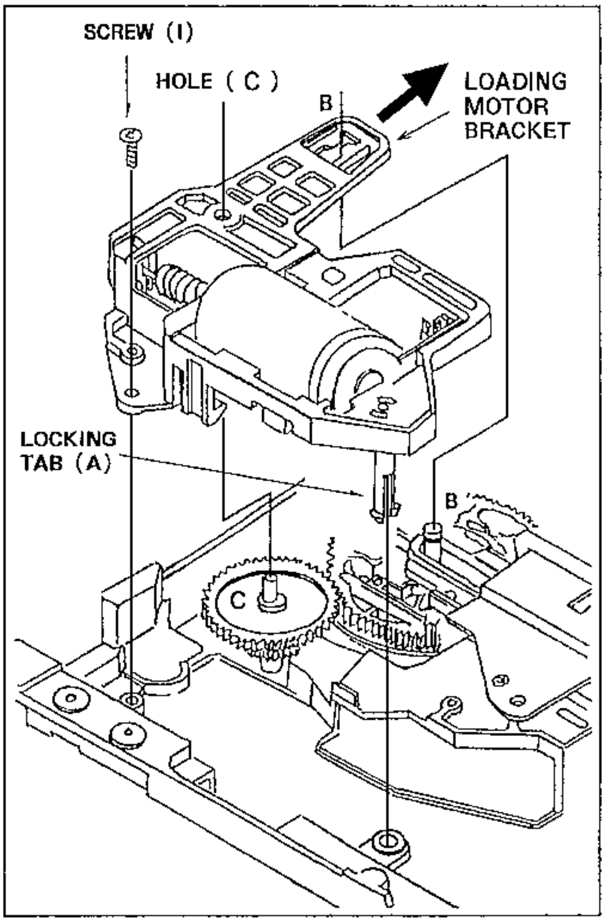

SCREW (I)
HOLE (C)
B
LOADING MOTOR BRACKET
LOCKING TAB (A)
B'
C

Fig.M11

2-12. Replacement of Cleaner Roller Unit

1. Unlock the locking tab (A) as shown in Fig.M12. and lift it up.
2. The Cleaner Roller Unit can be reinstalled by reversing the removal procedure.

3. Replacement of the Cleaner Rubber Unit. Hold the Cleaner Roller Unit and unlock the locking tab (B) then lift it up.

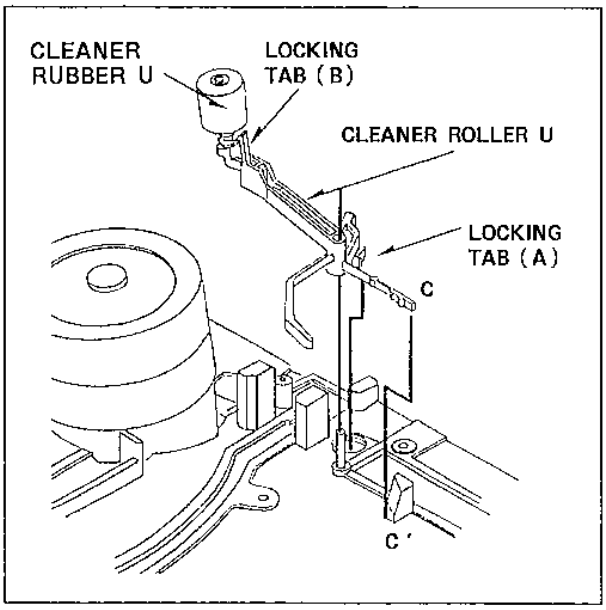

CLEANER RUBBER U
LOCKING TAB (B)
CLEANER ROLLER U
LOCKING TAB (A)
C
C'

Fig.M12

2-13. Replacement of SS Brake Base Unit and Timing Belt

1. Remove the Timing Belt.
2. Unscrew (J) and (K) then remove SS Brake Base Unit.
3. SS Brake Unit and Timing Belt can be reinstalled by reversing the removal procedure.

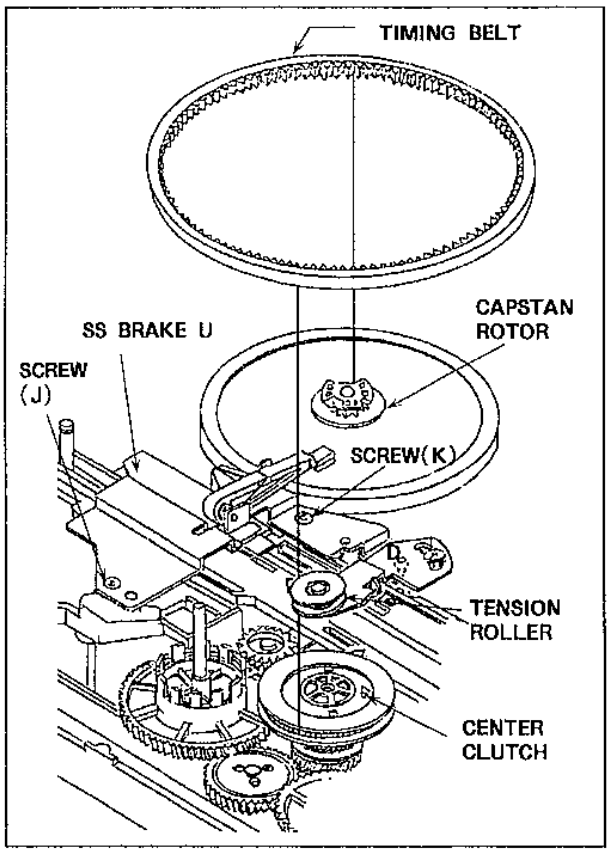

TIMING BELT
CAPSTAN ROTOR
SS BRAKE U
SCREW (J)
SCREW(K)
TENSION ROLLER
CENTER CLUTCH

Fig.M13

2-14. Replacement of Supply & Take-up Inclined Base Unit

1. Remove SS Brake Unit, Main Lever Unit and Supply and Take-up Loading Arm Unit refer to SECTION 2. and 3. in this service manual.
2. Remove the Inclined Holder base (A) from back side of mechanism chassis.
3. Remove the Supply and Take-up Inclined Base Units.
4. The both Inclined Base Units can be reinstalled by reversing the removal procedure.

<NOTE>

After reinstall the Inclined Base Unit should be perform Mechanical adjustment.

3-2. FINE ADJUSTMENT of P2 and P3 POSTS
3-5. FINE ADJUSTMENT of A/C HEAD HEIGHT
3-6. HORIZONTAL POSITION ADJUSTMENT of A/C HEAD

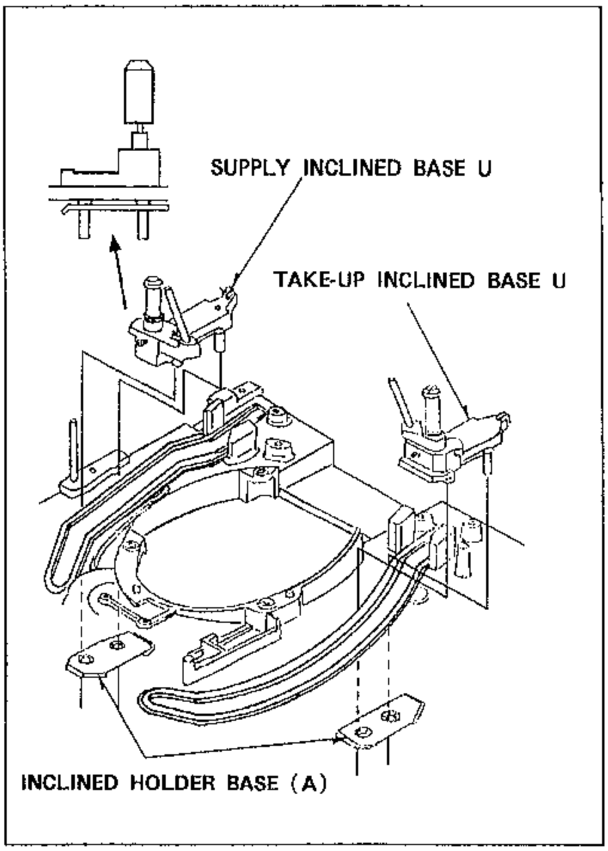

SUPPLY INCLINED BASE U
TAKE-UP INCLINED BASE U
INCLINED HOLDER BASE (A)

Fig.M14

SECTION 3
MECHANICAL ADJUSTMENT PROCEDURE

3-1. Coarse Adjustment of Tape Guide Post Height

1. Remove the Top Plate and Cassette Holder.
2. Turn the Loading Motor until the unloading completes.
3. Loosen the fixing screw of P2 and P3 Posts.
4. Rotate the P2 and P3 Posts clockwise to the end.
5. Rotate the P2 and P3 Posts twice counter-clockwise as shown in Fig.M15.
6. Install the Cassette Holder and Top Plate.
7. Playback the normal tape and make sure that the edge of not curing at the bottom or top end of the P1,P2,P3 and P4 Posts as shown in Fig.M17.

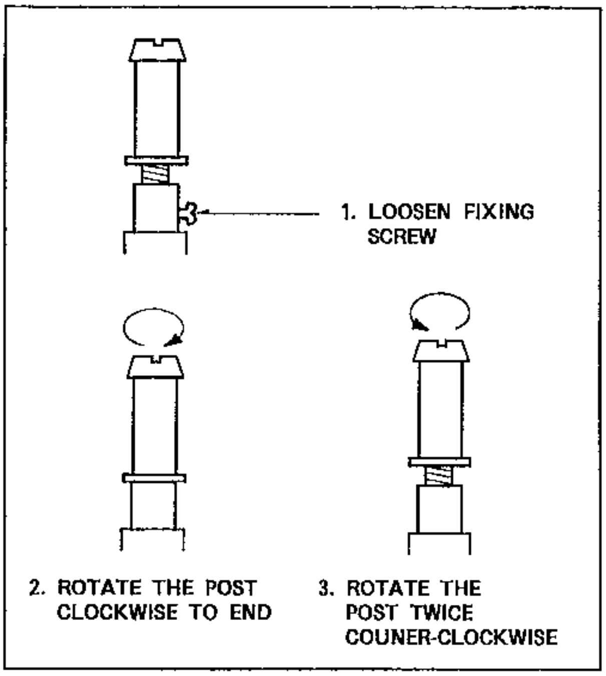

1. LOOSEN FIXING SCREW
2. ROTATE THE POST CLOCKWISE TO END
3. ROTATE THE POST TWICE COUNER-CLOCKWISE

Fig.M15

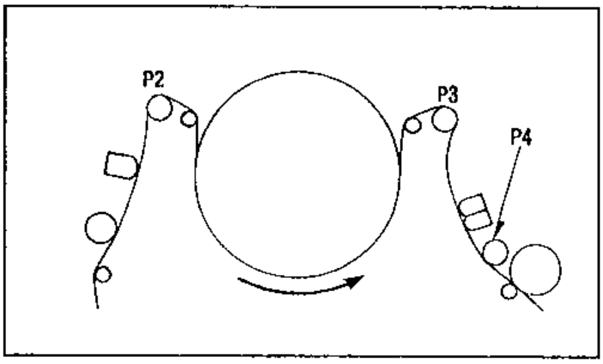


Fig.M16

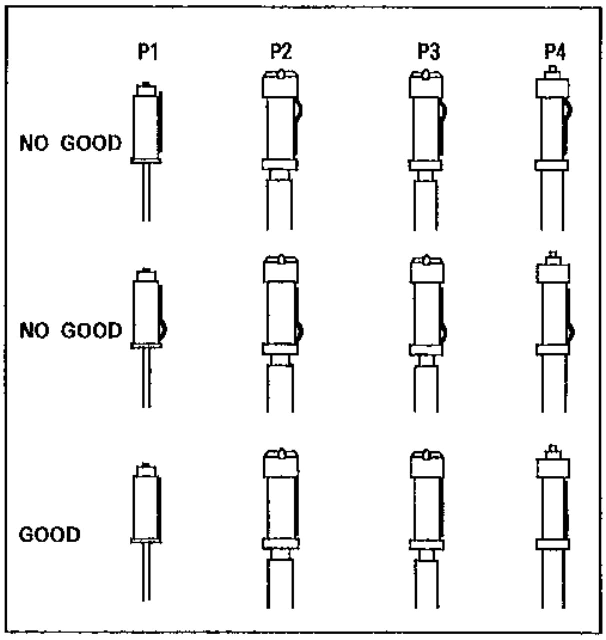

P1
P2
P3
P4
NO GOOD
NO GOOD
GOOD

Fig.M17

3-2. Fine Adjustment of P2 and P3 Posts

1. Connect the oscilloscope to the Test Point of the HEAD AMP (Video RF Envelope) and the head switching pulse as a triggering signal.

<NOTE>
TEST POINT please refer to the MECHANICAL ADJUSTMENT INFORMATION which are shown in service manual for each model.

2. Playback the 2nd portion of the alignment tape.
3. Press the tracking control button on the Front panel and adjust for maximum Video RF envelope.
4. If the RF envelope appears like example "A" or "B" in Fig.M18 then adjustment of the tape guide post (P3:Exit) is necessary.
5. Adjust the P3 post with the post adjustment screwdriver so that the RF envelope waveform at the exit portion becomes flat as shown in Fig.M18.
6. If the RF envelope appears like example "C" or "D" in Fig.M18 then adjustment of the tape guide post (P2:Entrance) is necessary.
7. Adjust the P2 post with the post adjustment screwdriver so that the RF envelope waveform at the entrance portion becomes flat as shown in Fig.M18.

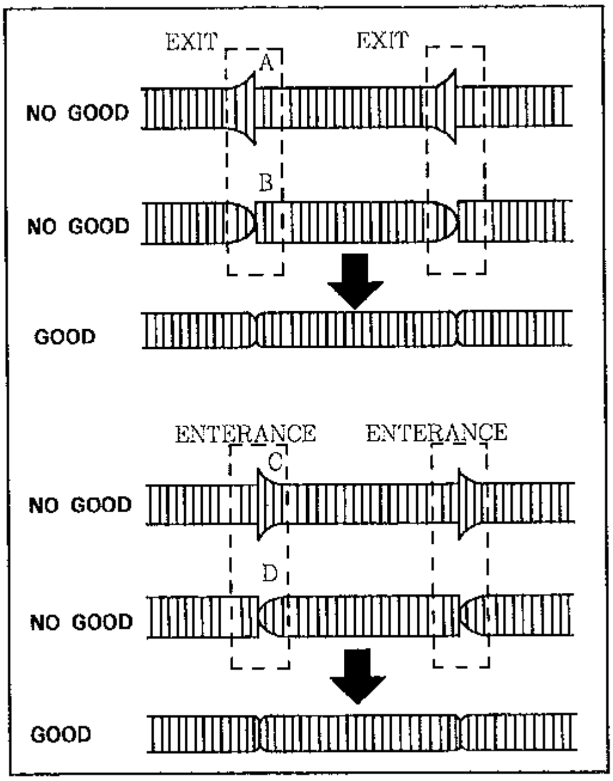

EXIT
A
EXIT
NO GOOD
B
NO GOOD
GOOD
ENTERANCE
C
ENTERANCE
NO GOOD
D
NO GOOD
GOOD

Fig.M18

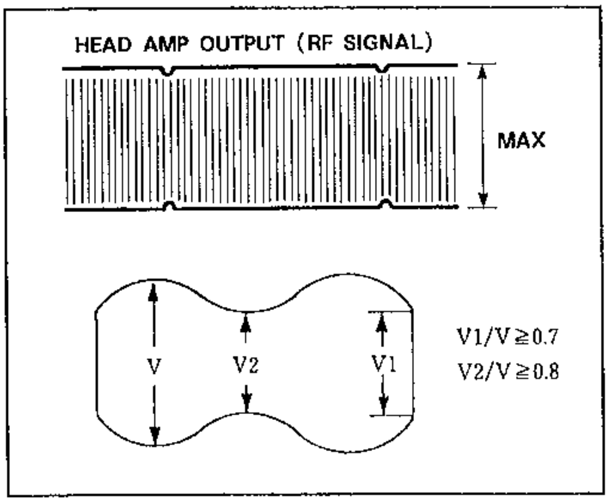

HEAD AMP OUTPUT (RF SIGNAL)
MAX
V
V2
V1
V1/V≧0.7
V2/V≧0.8

Fig.M19

3-3. Coarse Adjustment of A/C Head Height (1)

<NOTE>
This procedure should be performed only when the A/C Head is replaced.

1. Playback the normal tape.
2. Turn the 3 screws (A)(B)(C) mutually so that lower edge of tape running at lower edge of A/C Head and confirm a space as much as possible to flat between the A/C Head Unit and the A/C Head Base.

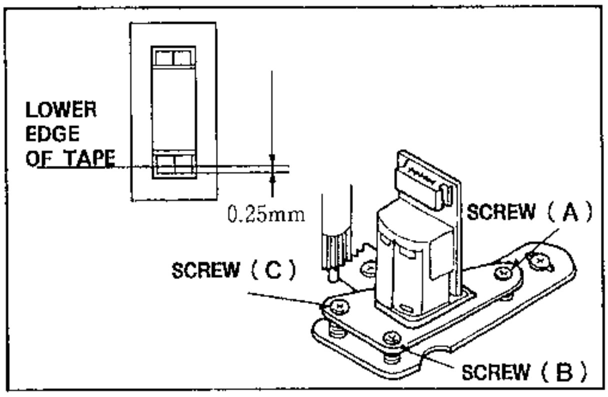

LOWER EDGE OF TAPE
0.25mm
SCREW (A)
SCREW (C)
SCREW (B)

Fig.M20

3-4. Coarse Adjustment of A/C Head Height (2)

1. Playback the normal tape.
2. Rotate the screw (A) as shown in Fig.M20 until the wrinkle appears on the lower edge of tape at P4 Post.
3. Rotate the screw (B) until the wrinkle just disappear on the lower edge of tape at P4 Post.

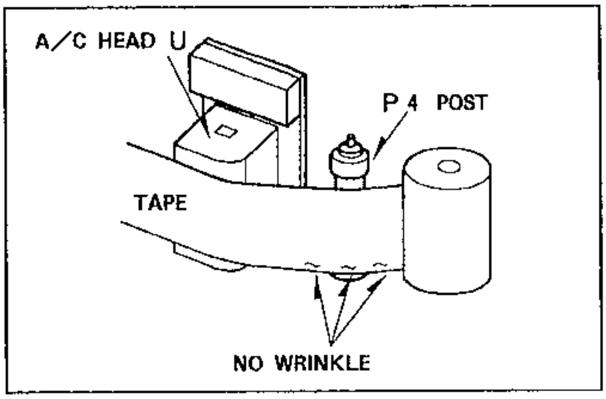


Fig.M21

3-5. Fine Adjustment of A/C Head Height

1. Connect the oscilloscope to the Audio output.
2. Playback the 2nd portion of the alignment tape.
3. Rotate the screw (C) so that audio signal becomes maximum.

<When moving the A/C Head up>

1. Rotate the screw (A) counter-clockwise until the wrinkle appears on the lower edge of tape at P4 Post.
2. Rotate the screw (B) counter-clockwise until just disappears on the lower edge of tape at P4 Post.
3. Rotate the screw (C) counter-clockwise until the audio signal is maximized.

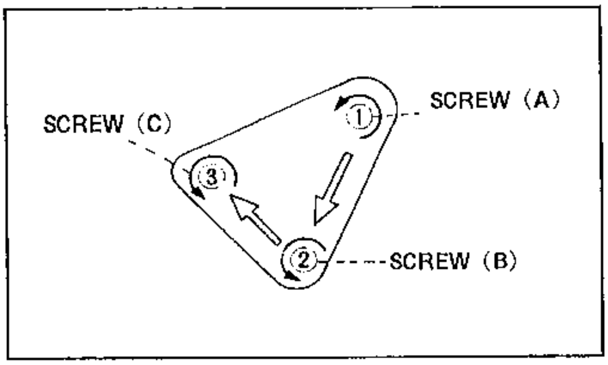


Fig.M22

<When moving the A/C Head down>

1. Rotate the screw (B) clockwise until the wrinkle appears on the lower edge of tape at P4 Post.
2. Rotate the screw (A) clockwise until the wrinkle just disappear on the lower edge of tape at P4 Post.
3. Rotate the screw (C) clockwise until the audio signal is maximized.

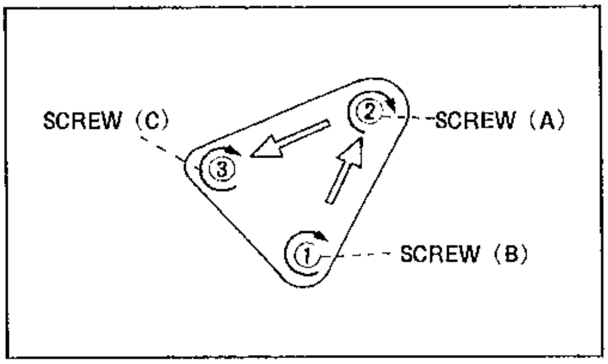


Fig.M23

3-6. Horizontal Position Adjustment of A/C Head.

<NOTE>
TEST POINT and JUMPER WIRE position, please refer to the MECHANICAL ADJUSTMENT INFORMATION which are shown in service manual for each model.

1. Set the tracking control into the center fix position by connect a jumper wire on the MAIN C.B.A.
2. Connect the oscilloscope to the Audio output, Video RF envelope on the Head Amp test point and head switching pulse on the Head Amp test point as for triggering.
3. Playback the 4th portion of the alignment tape.
4. Loosen the 2 screws (D)(E).
5. Adjust the A/C Head Base (F) so that the phase of audio drop-out and RF video drop-out becomes the same as possible. Fig.M24.
6. Playback the 2nd portion of the alignment tape.
7. Adjust the A/C Head Base (F) until the video RF signal is maximized.
8. Carefully tighten screw (D) with hold the A/C Head Base position with the Fine Adjustment Gear Driver then tighten screw (E).

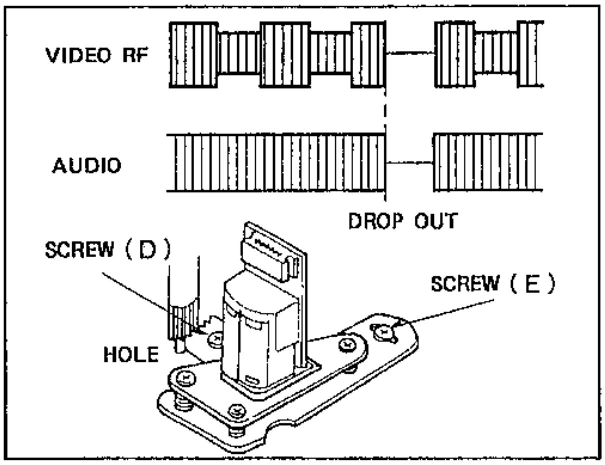

VIDEO RF
AUDIO
DROP OUT
SCREW (D)
SCREW (E)
HOLE

Fig.M24

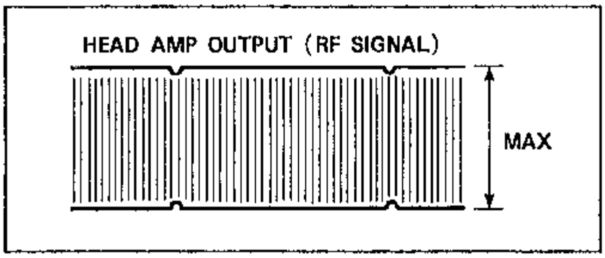

HEAD AMP OUTPUT (RF SIGNAL)
MAX

Fig.M25

3-7. Adjustment of Tension Post Position

1. Remove the Top Plate and Cassette Holder.
2. Turn the Loading Motor until the loading completes.
3. Adjust the hole of the Tension Band Unit by Hex wrench so that the left edge of the Impedance Roller and Tension Arm Unit as shown in Fig.M26.

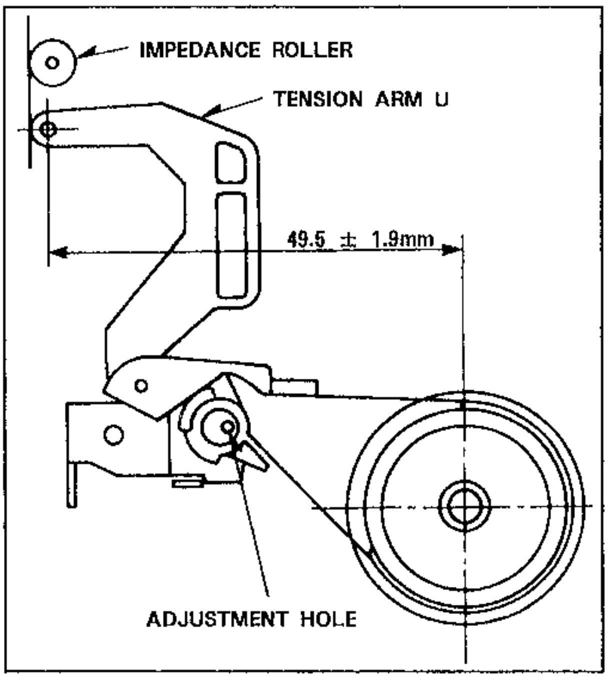

IMPEDANCE ROLLER
TENSION ARM U
49.5 ± 1.9mm
ADJUSTMENT HOLE

Fig.M26

3-8. Adjustment of Back Tension

1. Playback the cassette tape from the begging of tape and wait until tape movement has stabilized.
2. Insert the back tension meter into the path of the tape and confirm the back tension to be within specification as shown in Fig.M27.
3. If back tension is not in the specification, change the spring notch as shown in Fig.M28.

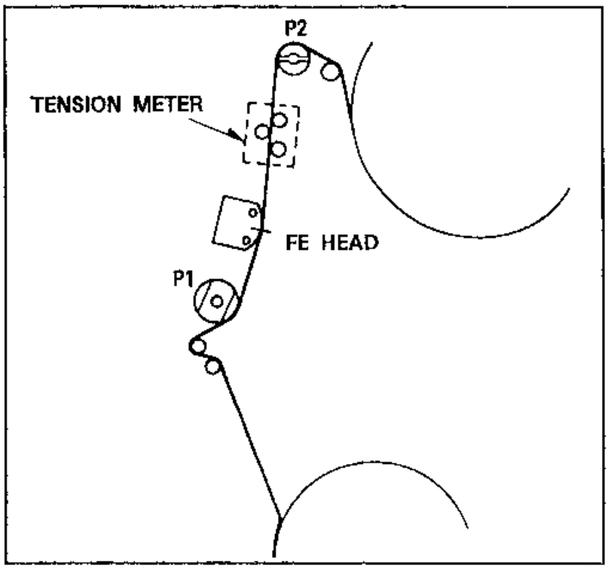

P2
TENSION METER
FE HEAD
P1

Fig.M27

<NOTE>
Specification of Back Tension, please refer to the MECHANICAL ADJUSTMENT INFORMATION which are shown in service manual for each model.

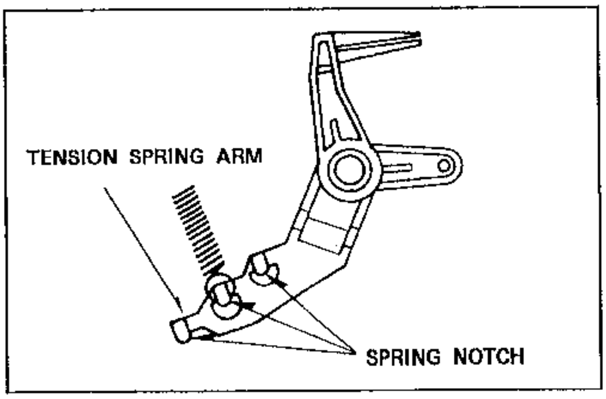

TENSION SPRING ARM
SPRING NOTCH

Fig.M28

3-9. Adjustment of Capstan Housing & Stator.

1. Install the Capstan Housing into the mechanical chassis and place the Capstan Stator into position.
2. Loosely tighten 3 screws (G).
3. Insert the Center Fixing Tool (VFK0851) as shown in Fig.M29.
4. Tighten 3 screws (G).
5. Remove the Center Fixing Tool.

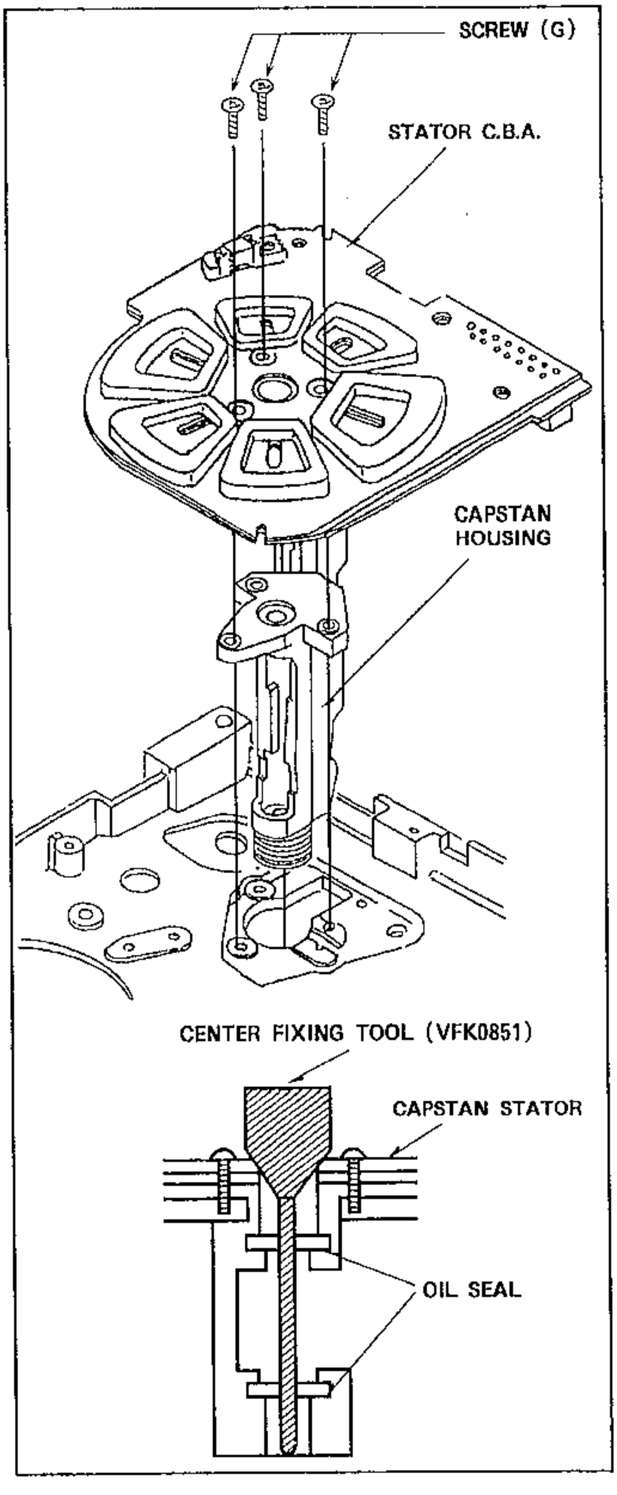

SCREW (G)
STATOR C.B.A.
CAPSTAN HOUSING
CENTER FIXING TOOL (VFK0851)
CAPSTAN STATOR
OIL SEAL

Fig.M29

3-10. Adjustment of Thrust Gap

1. Turn the Thrust Adjustment Screw clockwise to until the Capstan Rotor just separate from the Capstan Stator while rotating the Capstan Rotor by hand.
2. Turn the Thrust Adjustment Screw clockwise to 180 degrees from point at step 1.
3. Set the 2 Oil Seal to edge of the Capstan Housing as show in Fig.M30.

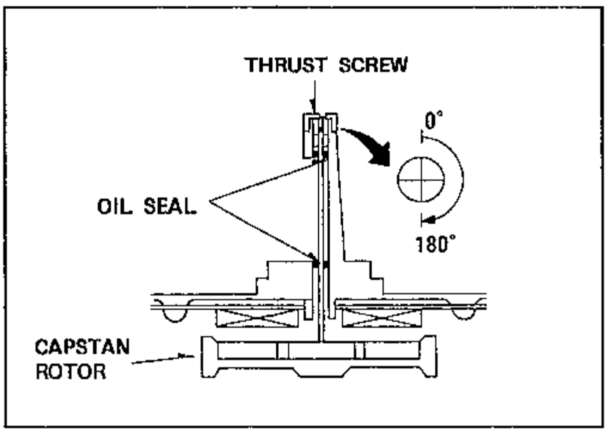


Fig.M30

3-11. Adjustment of FG GAP

1. Loosen screw (H) and set the Fine Adjustment Screw Driver in the hole on the Capstan Stator Unit.
2. Adjust the gap between FG Head and the Capstan Rotor.
3. After adjustment, tighten a screw (H).

<NOTE>
Specification of FG GAP, please refer to the MECHANICAL ADJUSTMENT INFORMATION which are shown in service manual for each model.

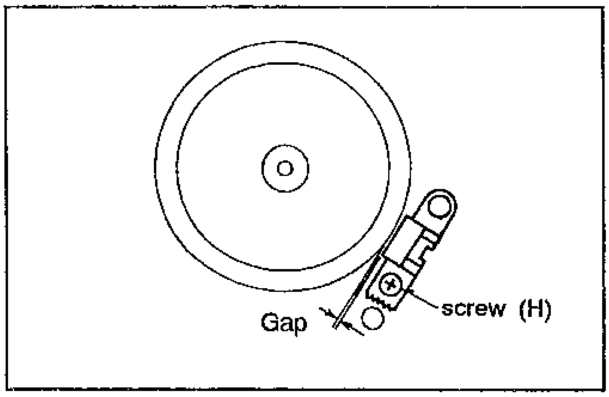


Fig.M31

3-12. Pressing Force Confirmation of the Pressure Roller

1. Playback the end portion of the 120 minutes tape.
2. Set the Fan type tension gauge to point (A) and push to direction indicated by the arrow (B) as shown in Fig.M32.
3. Confirm that reading of tension gauge is in specification at momentary stop the tape running.

<Note>
Specification of PRESSING FORCE, please refer to the MECHANICAL ADJUSTMENT INFORMATION which are shown in service manual for each model.

If the pressing force is not in specification, change the pressure spring.

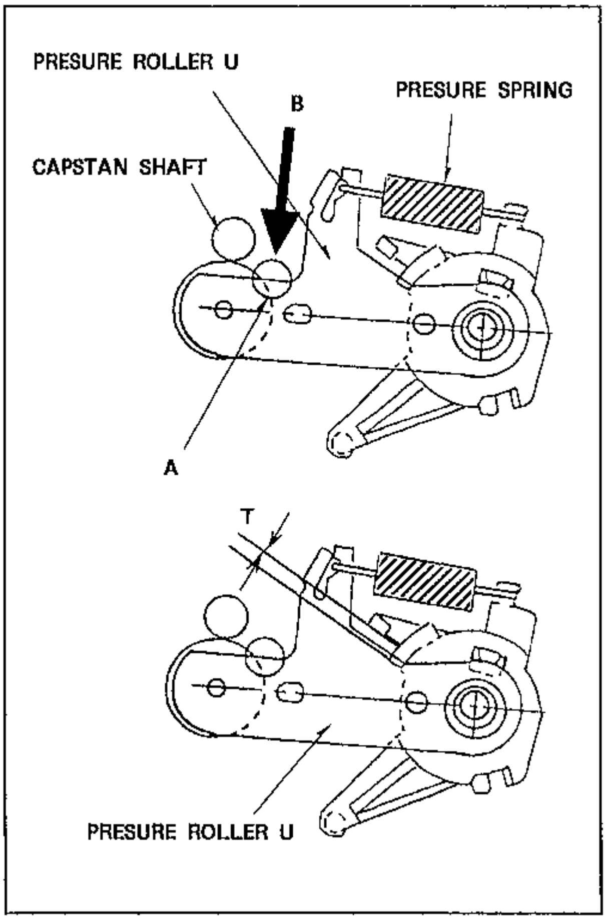


Fig.M32

SECTION 4
ASSEMBLY & PHASE ADJUSTMENT PROCEDURE

4-1. Assembly Procedures of Mechanism

The gear phase alignment is performed in the cassette down position and is crucial for the K-Mechanism to operate correctly.

1. Top view of gear phase alignment marks.
   There are alignment marks on the pinch cam gear and sub cam gear. there is one alignment mark on the carriage gear.

2. Bottom view of gear phase alignment marks.
   There are alignment marks on take-up loading gear and supply loading gear. There is an additional mark on the take-up loading gear that aligns with the mark on the main lever. There are alignment marks on the main cam gear and the sub cam gear. The mode switch gear mark aligns with a notch in the mode switch frame.

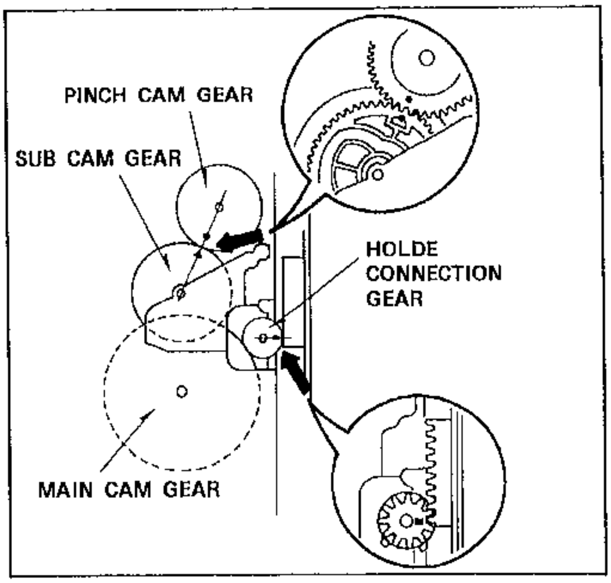
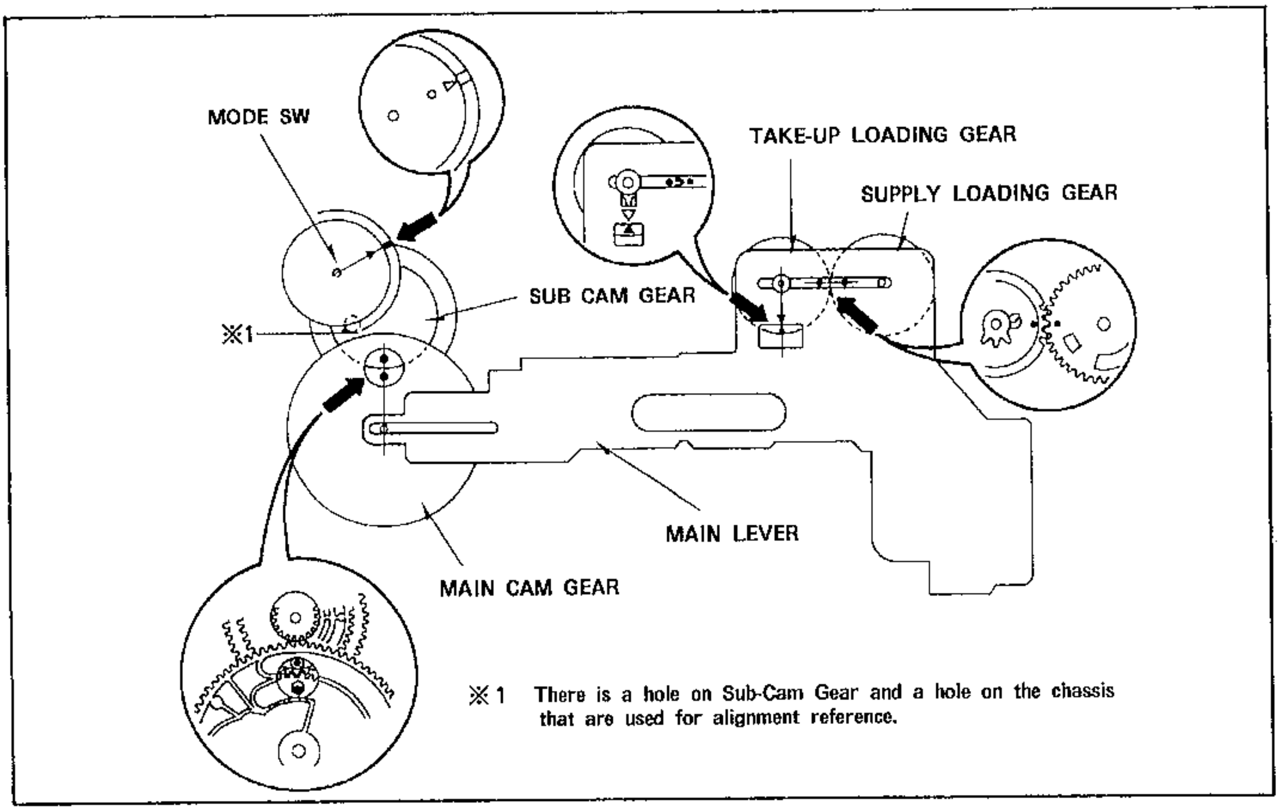

PINCH CAM GEAR
SUB CAM GEAR
HOLDE CONNECTION GEAR
MAIN CAM GEAR

Fig.M33


MODE SW
TAKE-UP LOADING GEAR
SUPPLY LOADING GEAR
SUB CAM GEAR
※1
MAIN LEVER
MAIN CAM GEAR

※1 There is a hole on Sub-Cam Gear and a hole on the chassis that are used for alignment reference.

Fig.M34

4-2. Assembly of parts on the Top Chassis

1. Install the Pinch Cam Gear onto shaft (A) and the P5 Arm Unit onto shaft (B).
2. Install the P5 Stopper Base with the cut washer (D) and screw (C).
3. Install the P5 Stopper on the P5 Stopper Base with latch (E).

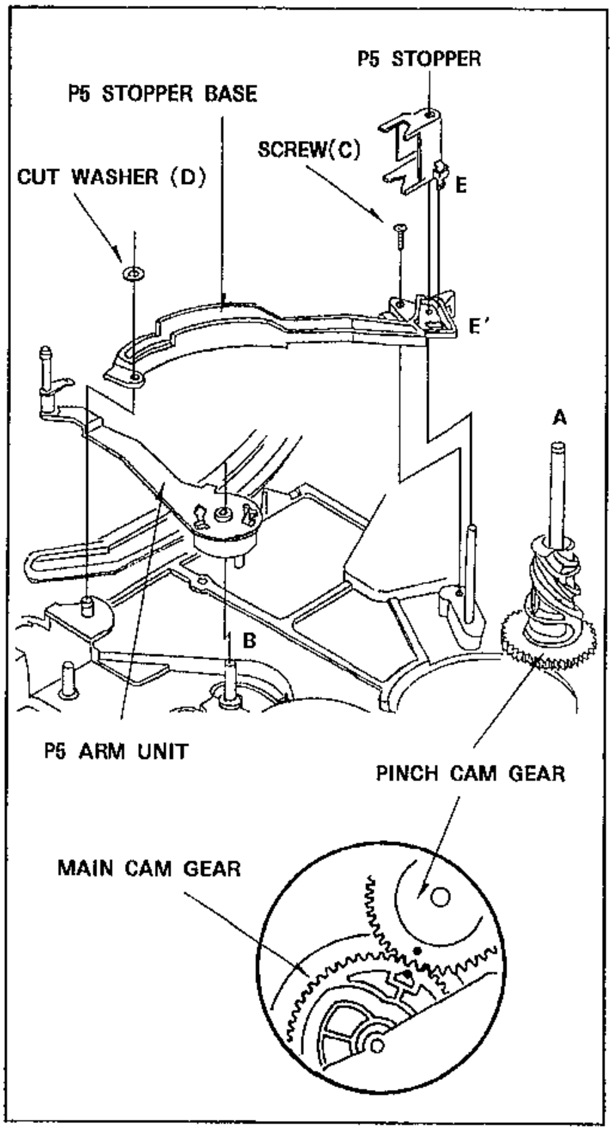

P5 STOPPER
P5 STOPPER BASE
SCREW(C)
CUT WASHER (D)
E
E'
A
B
P5 ARM UNIT
PINCH CAM GEAR
MAIN CAM GEAR

Fig.M35

4-3. Assembly of parts on the Bottom Chassis

1. Install the Idler Arm Unit onto shaft (F).
2. Install the Take-up and Supply Reel Gears onto shaft (G) and (H).
3. Install the Idler Regulator Level onto shaft (I) then install the Direct Lever.
4. Install the Center Clutch onto shaft (F) with the cut washer.

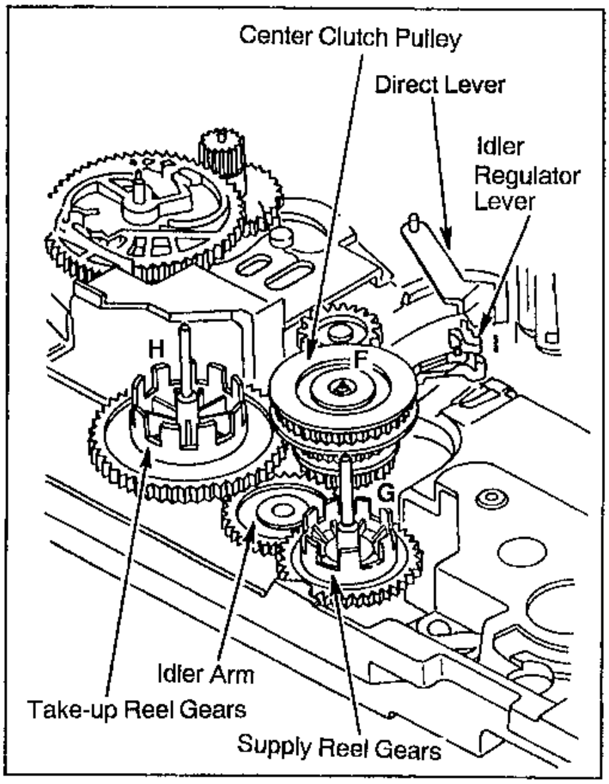

Center Clutch Pulley
Direct Lever
Idler Regulator Lever
H
F
I
G
Idler Arm
Take-up Reel Gears
Supply Reel Gears

Fig.M36

4-4. Assembly of Main Cam Gear and Sub Cam Gear

1. Install the Sub Cam Gear on to shaft (J) so that the chassis hole aligns with hole in the Sub Cam Gear.
2. Rotate the Holder Connection Gear to position of arrow mark as shown in Fig.M37.
3. Install the Main Cam Gear onto shaft (K) so that the hole of the Main Cam Gear aligns with the hole in the Sub Cam Gear. Also insert the boss of the Take-up Tension Regulator Arm into the slot on the Main Cam Gear.

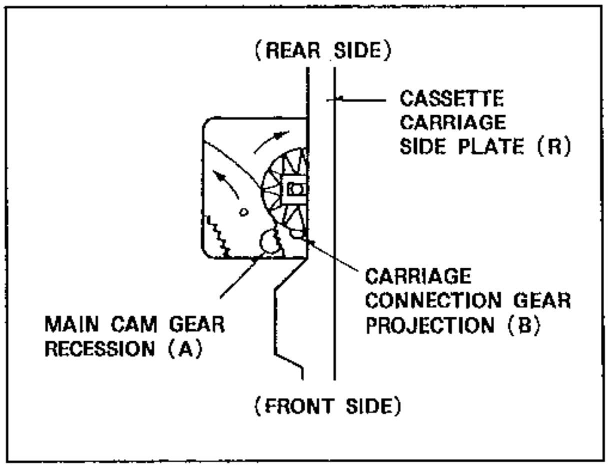

(REAR SIDE)
CASSETTE CARRIAGE SIDE PLATE (R)
CARRIAGE CONNECTION GEAR PROJECTION (B)
MAIN CAM GEAR RECESSION (A)
(FRONT SIDE)

Fig.M37

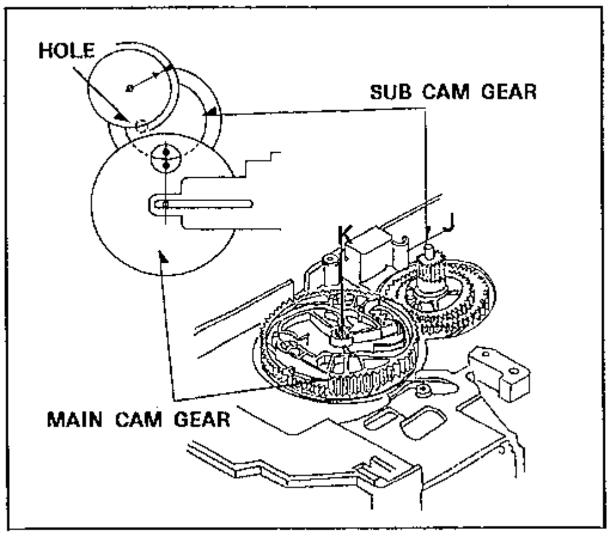

HOLE
SUB CAM GEAR
K
J
MAIN CAM GEAR

Fig.M38

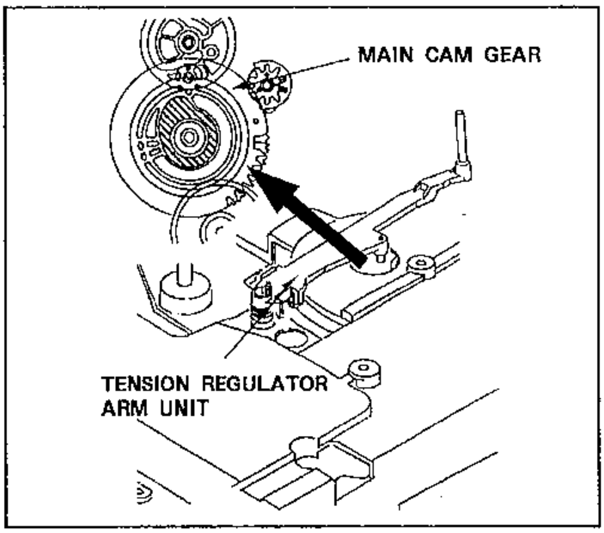

MAIN CAM GEAR
TENSION REGULATOR ARM UNIT

Fig.M39

4-5. Assembly of Mode Switch

1. Align a triangle mark on the Mode Switch Gear with the notch on the Mode Switch frame.
2. Confirm the Main and Sub Cam Gears aligned properly then install the Mode Switch with screw (L).

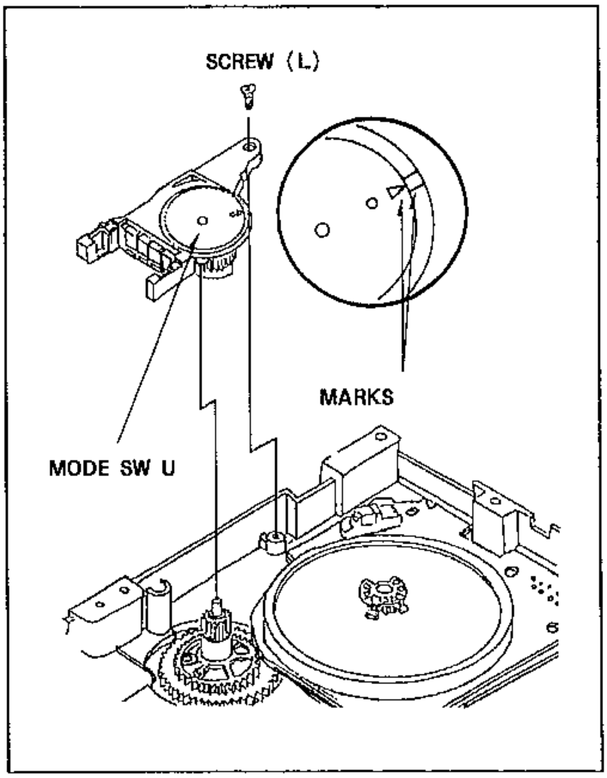

SCREW (L)
MARKS
MODE SW U

Fig.M40

4-6. Assembly of Take-up and Supply Loading Gears.

1. Install the Supply Loading Gear onto the shaft (S).
2. Install the Take-up Loading Gear onto the shaft (T) so that hole on the Take-up Loading Gear align with the hole on the Supply Loading Gear.
3. Install the Supply Loading Arm onto shaft of the Supply Inclined Base with washer.
4. Insert the Take-up Loading Arm onto shaft of the Take-up Inclined Base with washer.

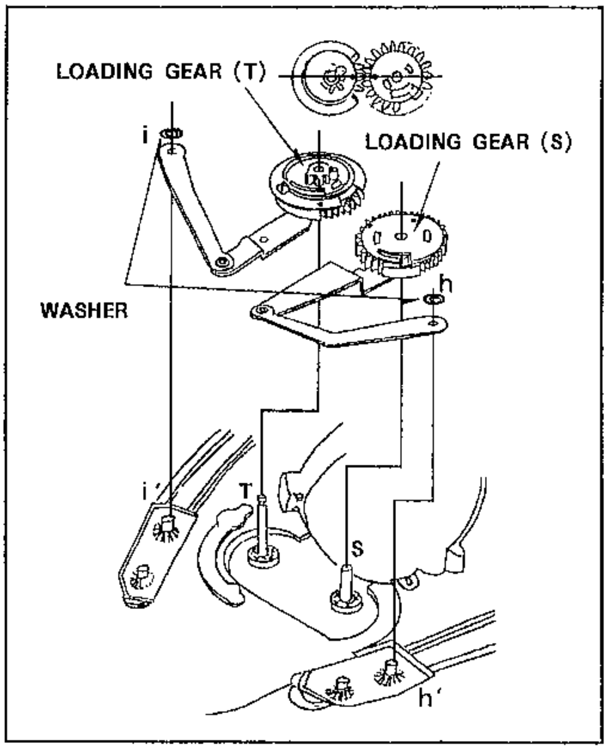

LOADING GEAR (T)
LOADING GEAR (S)
i
WASHER
h
i'
T
S
h'

Fig.M41

4-7. Assembly of Main Lever

1. Install the Main Lever Arm checking that the boss of arms and shafts are in correct position and mark on the Main Lever Arm is aligned with mark on the Take-up Loading Gear.
2. Insert the 2 cut washer as shown in Fig.M42.

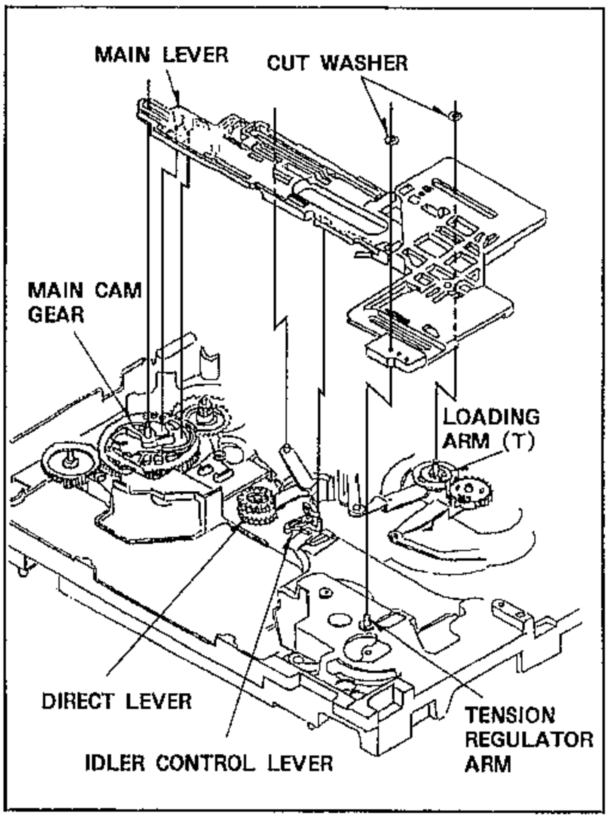

MAIN LEVER
CUT WASHER
MAIN CAM GEAR
LOADING ARM (T)
DIRECT LEVER
IDLER CONTROL LEVER
TENSION REGULATOR ARM

Fig.M42

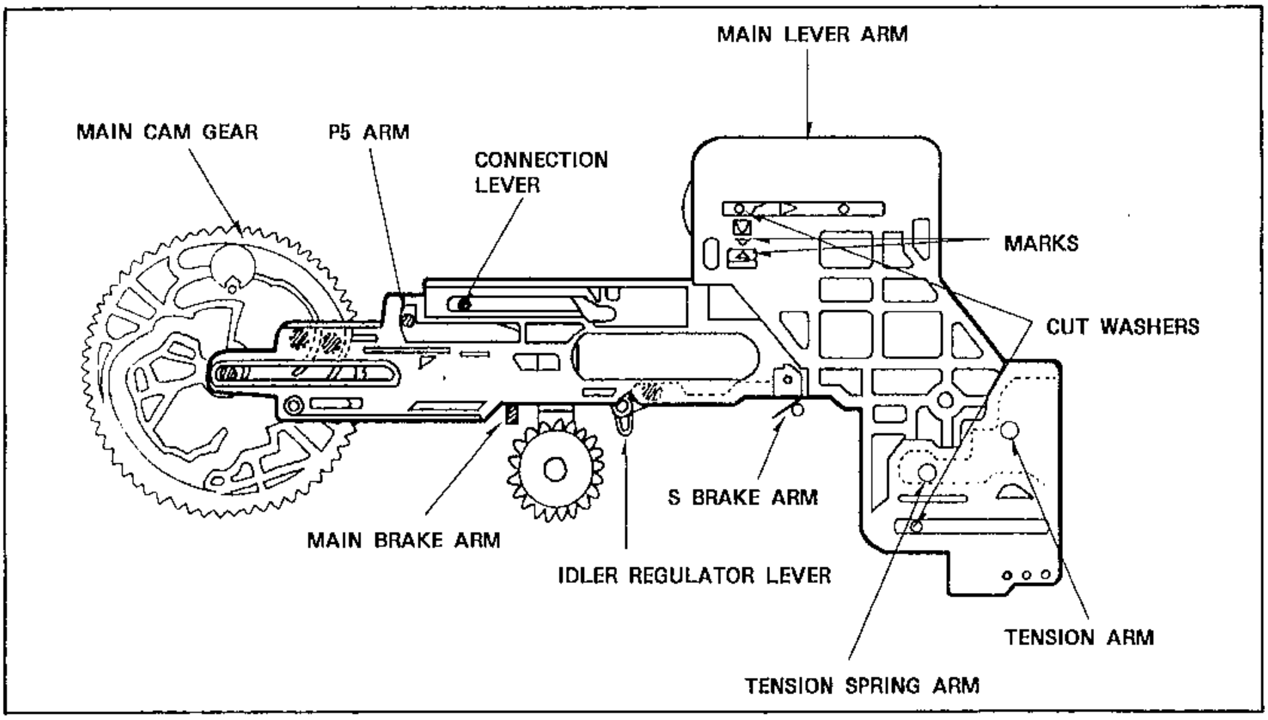

MAIN LEVER ARM
MAIN CAM GEAR
P5 ARM
CONNECTION LEVER
MARKS
CUT WASHERS
S BRAKE ARM
MAIN BRAKE ARM
IDLER REGULATOR LEVER
TENSION ARM
TENSION SPRING ARM

Fig.M43

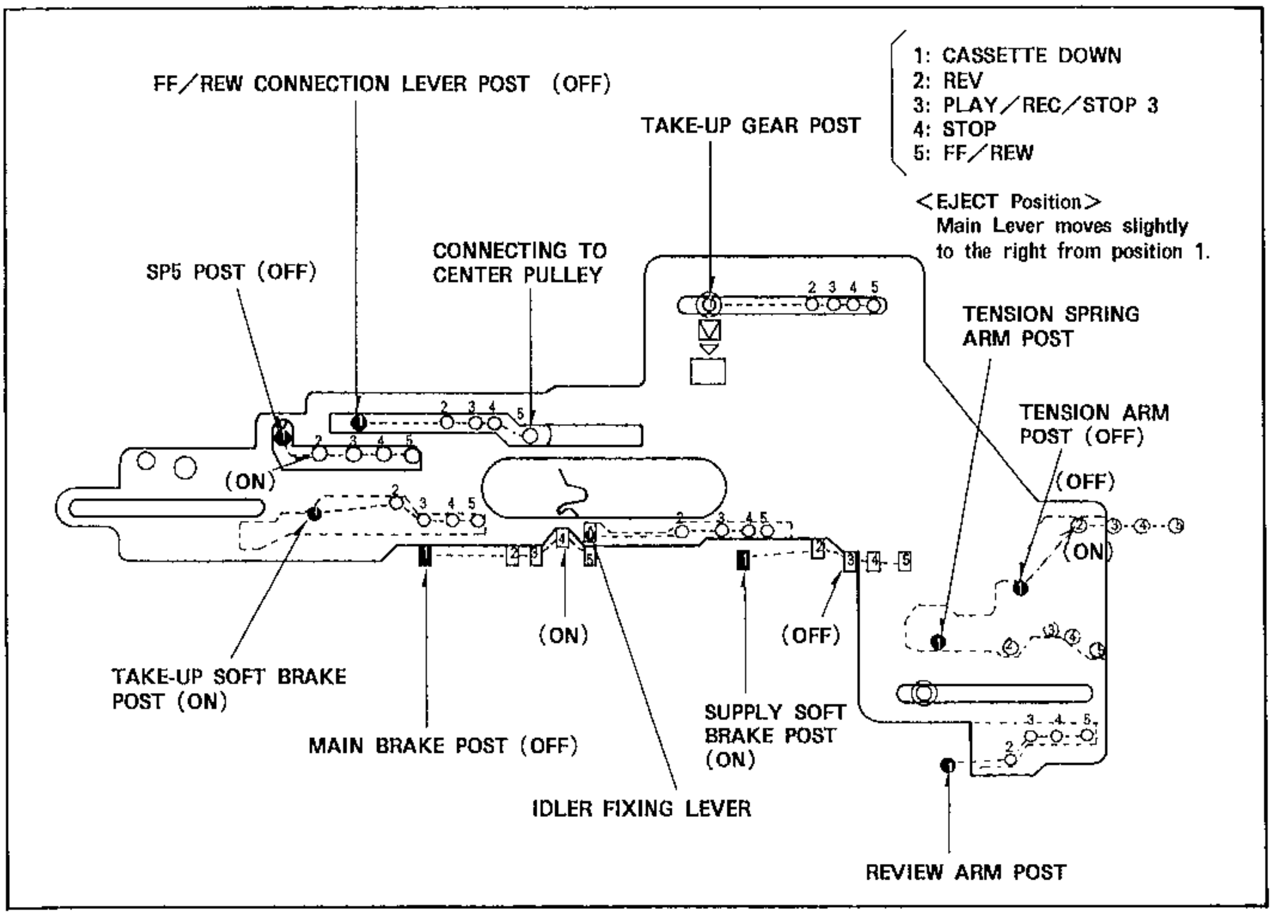

1: CASSETTE DOWN
2: REV
3: PLAY/REC/STOP 3
4: STOP
5: FF/REW
<EJECT Position>
Main Lever moves slightly to the right from position 1.
FF/REW CONNECTION LEVER POST (OFF)
TAKE-UP GEAR POST
SP5 POST (OFF)
CONNECTING TO CENTER PULLEY
TENSION SPRING ARM POST
TENSION ARM POST (OFF)
(ON)
(OFF)
(ON)
(ON)
(OFF)
TAKE-UP SOFT BRAKE POST (ON)
MAIN BRAKE POST (OFF)
SUPPLY SOFT BRAKE POST (ON)
IDLER FIXING LEVER
REVIEW ARM POST
2
3
4
5

Fig.M44

4-8. Reinstall of the Cassette Compartment

1. Push the locking tabs to direction as shown in Fig.M45 and remove the Top Plate.

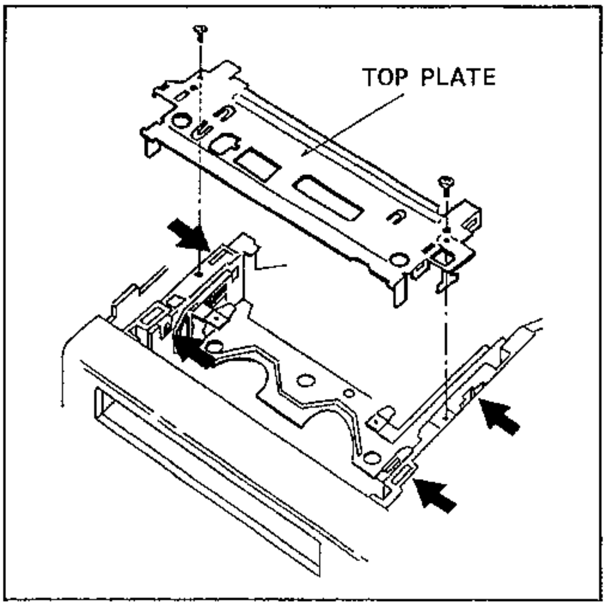


Fig.M45

2. Lift up the Cassette Holder Unit as shown in Fig.M46.

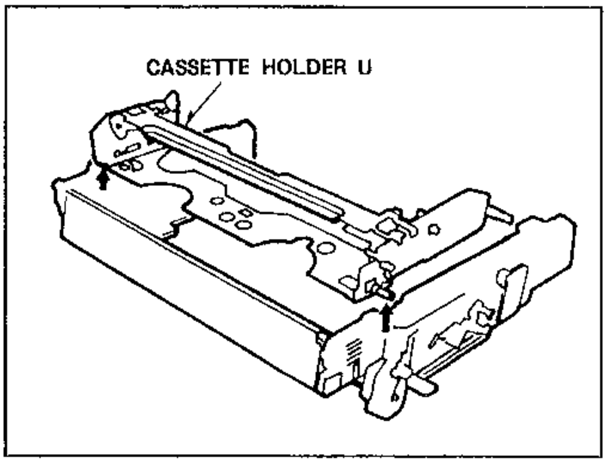

CASSETTE HOLDER U

Fig.M46

3. Press the Wiper Arm to direction indicated by arrow mark so that the Wiper Arm comes to cassette down position completely as shown in Fig.M48. Confirm a triangle mark on the Wiper Arm aligns with the mark on the Rack (B) Unit.

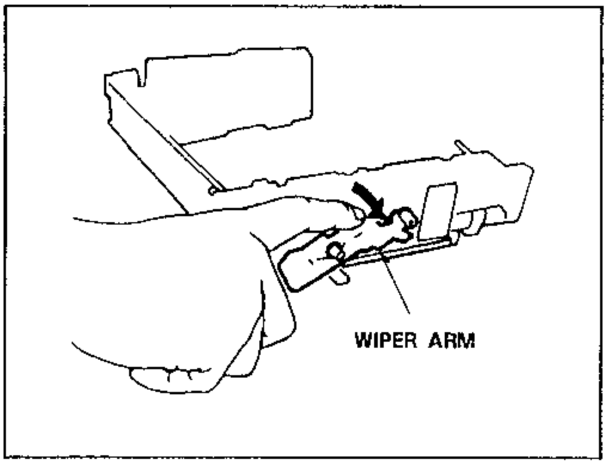


Fig.M47

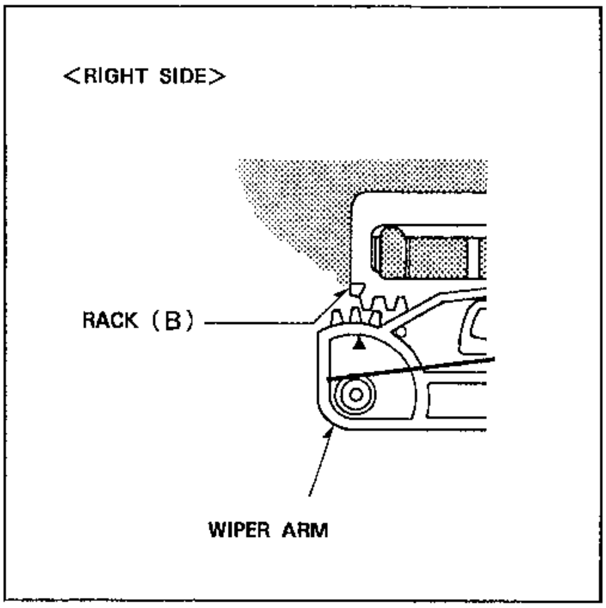

<RIGHT SIDE>
RACK (B)
WIPER ARM

Fig.M48

4. Install the cassette compartment (without cassette holder) to the mechanical chassis so that mark on the Holder Connection Gear should line up with first tooth of the Rack Gear as shown in Fig.M49.

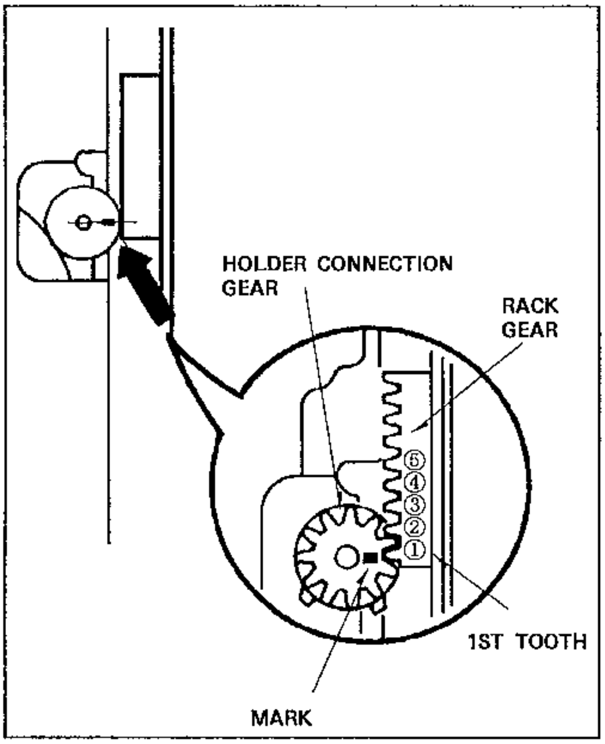

HOLDER CONNECTION GEAR
RACK GEAR
⑤
④
③
②
①
1ST TOOTH
MARK

Fig.M49

5. Tighten 4 screws as shown in Fig.M50.
6. Manually move the loading mechanism toward the EJECT position by turn the Loading Motor and stop just before completion, so that the Wiper Arm straight up.
7. Install the Cassette Holder Unit in the Cassette Compartment Base as shown in Fig.M51.
8. Install the Top Plate on the Cassette Compartment Base.
9. Manually confirm that front loading and main loading run smoothly.

<NOTE>

For proper front loading, the guide pin on the opener lever should follow the upper track of the right side panel as shown in Fig.M52.

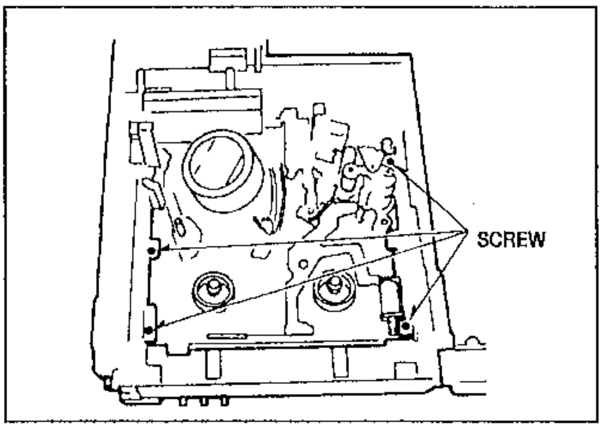
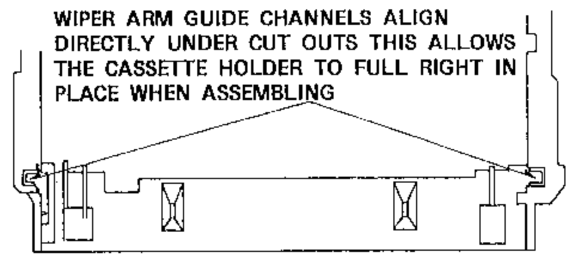


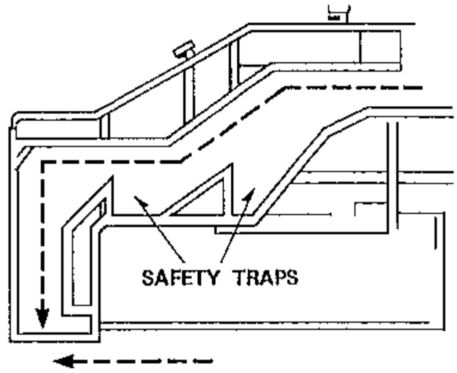
Fig.M50

(TOP VIEW OF CASSETTE COMPARTMENT BASE)


WIPER ARM GUIDE CHANNELS ALIGN DIRECTLY UNDER CUT OUTS THIS ALLOWS THE CASSETTE HOLDER TO FULL RIGHT IN PLACE WHEN ASSEMBLING

*PLEASE NOTE THIS IS NOT FINAL EJECT POSITION

Fig.M51


SAFETY TRAPS

PATH (OPENER LEVER) GUIDE PIN SHOULD TAXE

Fig.M52